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Expansion of the Soviet Merchant Marine Into the U.S. Maritime Trades

U. S. DEPARTMENT
OF COMMERCE
Maritime Administration
Office of Policy and Plans
Division of Special Studies

August 1977

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I. INTRODUCTION

The phenomenal expansion of the Soviet merchant fleet parallels the growth of its Navy. Twenty years ago the carrying capacity of the Soviet merchant marine placed it 20th in world ranking. Today, it ranks fourth with respect to number of ships and ninth in terms of deadweight tonnage. In addition, the early 1977 Soviet vessel orderbook was fourth by number of vessels and tenth by deadweight tonnage when compared to other nations' new vessel orderbooks. Particularly during the past decade, the Soviet Union has undertaken an extensive program of merchant fleet modernization and expansion.

The fruits of this program, diligently pursued over the past years, are becoming very visible in the increasing levels of Soviet fleet penetration into international commerce. The Soviet merchant marine of today has the combined capability to carry more than half of all Soviet foreign waterborne trade, to deliver the military and economic cargoes of Communist Bloc and other nations receiving aid, and to satisfy all of the Soviet domestic waterborne shipping requirements. In addition, the Soviet merchant fleet has increased its capability to earn currency from the U.S. and other nations as a third-flag carrier in the "cross trades" of world commerce. In response to the growing trade penetration in the United States by the Soviet merchant fleet, we have attempted to analyze and monitor the policies of the Soviet merchant marine, and to forecast its future development.

This paper is based on the latest, most reliable U.S. Government information, as well as other published data, both domestic and foreign. The paper contains a comprehensive review of the growth and composition of the Soviet fleet and projects growth trends in fleet size and ship types for the next 10 years. A detailed discussion of the Soviet fleet's participation in the U.S. trade since the signing of the first U.S.-U.S.S.R. Maritime Agreement in 1972 is undertaken and projections of future Soviet penetration through 1985 are made. Finally, Soviet fleet operations and competitive practices are discussed in detail with an emphasis on how this fleet has performed in the worldwide trade.

II. EXECUTIVE SUMMARY

- The Soviet merchant marine has a number of essential missions among which are:

  - to provide shipping capacity to reduce dependence on western shipping;

  - to earn foreign currency to assist in the balance of payments;

  - to provide the shipping capacity necessary to transport military cargoes; and

  - to assist in the expansion of Soviet policy throughout the world.

- Between 1965 and 1975, the Soviet merchant fleet increased in size from 990 vessels of 8 million deadweight tons (dwt) to 1,655 vessels of 15.4 million dwt.

- The Soviet merchant marine is projected to be 1,717 vessels of 18.4 million dwt in 1980 and 1,812 vessels of 23 million dwt in 1985. This projection is based upon the historical growth trend of the Soviet merchant marine since 1959.

- The Soviet intermodal fleet in 1975 consisted of 30 vessels totaling nearly 158,000 dwt with a 1981 forecast of 54 vessels totaling 566,000 dwt and a 1986 forecast of 94 vessels totaling 1.2 million dwt.

- During 1975 and 1976 the Soviet merchant marine began operating large, full containerships and Roll-On/Roll-Off (RO/RO) vessels in the U.S. liner trades. These vessels are considered to be the technological equivalent of western intermodal vessels.

- The technologically advanced intermodal fleet forecast for construction through 1985 is not considered to be in line with future Soviet foreign seaborne trade vessel requirements. Soviet dry and liquid bulk cargoes are estimated to be between 75 and 80 percent, by volume, of the total Soviet foreign oceanborne trade.

- In 1971, Soviet participation in U.S. liner oceanborne foreign trade was 160,000 tons valued at $38 million, representing, by tonnage, 0.4 percent of the total U.S. liner trade. In 1976, this participation was 7-8 times greater: preliminary information shows that the Soviets carried 1,434,000 tons valued at $1.7 billion, representing, by tonnage, 2.9 percent of the total U.S. liner trade.

- Since the signing of the U.S.-U.S.S.R. Maritime Agreement in 1972, bilateral liner cargoes carried by the Soviet fleet have averaged around 10-15 percent of their total liner carriage with the remaining 85-90 percent being "cross trades" cargoes.

- Soviet liner operations are primarily concentrated on five U.S. trade routes:

  - East Coast to United Kingdom, Continent and Scandinavia
  - Atlantic, Gulf, Pacific Coast to Indonesia and Malaysia
  - Gulf Coast to United Kingdom and Continent
  - Pacific Coast to Far East
  - Great Lakes to United Kingdom, Continent and Mediterranean.

- In 1976, 13 of the top 20 commodities by value carried by the Soviet fleet in the U.S. trades were high-value liner cargoes representing 36 percent of the total value of all cargoes carried.

- By 1985 the Soviet liner fleet carriage of U.S. liner cargoes is forecast to increase to 6.6 percent if the Soviet Union continues its present practice of rate cutting. However, if the Soviets eventually become members of the liner conferences, their level of penetration would thereafter remain relatively constant.

- Based on the projected Soviet fleet growth, the Soviet share of total U.S. commercial cargoes is forecast to increase to 1.1 percent by 1985, up from its 1976 level of 0.8 percent. This penetration growth is not as great as the liner growth because of the large volume of dry and liquid bulk commodities moving in the U.S. foreign trades.

III. AN ANALYSIS OF THE SOVIET FLEET

A. Recent Growth/New Technology

Based upon the latest available Department of Navy/Maritime Administration (MarAd) information, between 1965 and the end of 1975 the Soviet merchant fleet grew from 990 vessels of 8 million dwt to 1,655 vessels of 15.4 million dwt, representing a 67 percent increase in the number of vessels and a 92 percent increase in tonnage. Table I ranks the major maritime countries by tonnage in 1965 and 1975; the Soviet Union ranked seventh in 1965 and ninth in 1975. It should be noted that seventh place in 1965 ranked the Soviet Union behind the U.S., but ninth place in 1975 ranked the Soviet Union ahead of the U.S.

In 1975 the Soviet fleet increased by 972,000 dwt while the U.S. fleet increased by 582,000 dwt. In that same year the Soviet fleet had a net gain of 46 vessels, bringing their total number of vessels to 1,655, while a net loss of 3 ships in the privately owned U.S. merchant marine decreased our fleet to 580.

Since 1965 the major vessel tonnage increases of the Soviet fleet have been with new technology, general cargo vessels -- freighters, refrigerated freighters, intermodal, and timber carriers, which have grown from less than 5 million dwt to nearly 9 million dwt in 1975. This is in contrast with the major increase in the total world fleet during this period which has been in tanker vessels, the result of the growing worldwide demand for petroleum products.

Table I

Growth of Fleets of Major Maritime Countries
Dec. 31, 1965, and Dec. 31, 1975
Oceangoing Ships of 1,000 Gross Tons and Over
(Tonnage in thousands)

	1965		1975		
Country	No.	Total dwt (In Thousands)	No.	Total dwt (In Thousands)	Percent Tonnage Increase (+) or Decrease (-)
World Total	7,974	215,668	22,123	553,675	+57
Liberia	1,313	30,906	2,546	132,694	+329
Japan	1,333	16,450	2,051	63,238	+284
United Kingdom	2,052	26,385	1,576	54,913	+108
Norway	1,365	23,538	991	47,796	+103
Greece	916	10,388	1,804	37,638	+262
Panama	564	7,228	1,556	22,112	+206
France	542	6,406	444	17,690	+176
Italy	588	6,917	633	16,081	+132
U.S.S.R.1/	990	8,000	1,655	15,353	+92
U.S. Privately Owned	948	14,650	580	15,028	+3
West Germany	843	7,184	611	13,453	+87

1/ The Maritime Administration concurs with the Navy data on vessels and deadweight tonnage of the Soviet fleet. The Navy data excludes the coastal/river type and fishing fleet vessels over 1,000 grt on the assumption that they normally operate in the Soviet inland/coastwise and fishing trades and are therefore not relevant for deep-sea domestic and foreign trade operations.

Source: Maritime Administration, U.S. Department of Commerce and Department of the Navy.

Table II details a comparison by vessel type of the 1975 Soviet and U.S. fleets. The table shows that while the tonnage of the two fleets is nearly equal, the number of vessels in the Soviet fleet is nearly three times that of the U.S. This results in the average deadweight tonnage of a vessel in the U.S. fleet being nearly three times larger than the average size Soviet ship. The only vessel category where the Soviets have a ship size advantage is the combination oil/bulk/ore (OBO) carrier. Overall, however, the Soviet fleet also has significant advantages in the number and total tonnage of dry bulk carriers, general purpose freighters, timber carriers (the U.S. has none) and refrigerated vessels.

However, the U.S. does have a substantial advantage in the size and number of modern intermodal vessels, i.e., full containerships, Roll-On/Roll-Off vanships, and barge carriers. In addition, the U.S. has an advantage with a total tanker fleet deadweight tonnage nearly twice that of the Soviet fleet. U.S. tankers are, on the average, over twice the size of those in the Soviet fleet.

Table III details the composition of the world fleet based on Maritime Administration data. A comparison of Tables II and III shows that the average size (9,300 dwt) Soviet vessel is less than two-fifths the average size (24,500 dwt) of a vessel in the world fleet. The average United States vessel (25,900 dwt) is slightly larger than the average world ship (24,500 dwt),

Table II

	U.S. Privately Owned Merchant Fleet Composition by Vessel Type (Jan. 1, 1976)1/				Soviet Merchant Fleet Composition by Vessel Type (Jan. 1, 1976)2/			
	Number	Total dwt (In Thousands)	Percent of Total dwt	Average dwt	Number	Total dwt (In Thousands)	Percent of Total dwt	Average dwt
Total	580	15,028	100	25,900	1,655	15,353	100	9,300
Tanker	250	9,475	63	37,900	286	4,980	32	17,400
Combination Oil/Bulk/ Ore Carrier (OBO)	2	164	1	82,200	4	370	2	92,500
Dry Cargo	328	5,389	36 3/	16,400	1,365	10,003	66	7,300
Dry Bulk Carrier	17	380	3	22,400	110	1,277	8	11,600
Freighters	161	2,170	14	13,500	798	6,466	42	8,100
Full Container	110	1,802	12	16,400	12	82	1	6,800
Roll-On/Roll-Off	13	191	1	14,700	18	85	1	4,700
Barge Carrier	23	809	5	35,200	--	--	--	--
Timber Carrier	--	--	--	--	399	1,959	13	4,900
Refrigerated	4	37	--4/	9,200	28	134	1	4,800

1/ Based on Maritime Administration data.

2/ Based on Department of Navy data.

3/ Percent of dry cargo may not add due to rounding.

4/ Actual percentage is 0.2.

Table III

World Fleet Composition by Vessel Type

Jan. 1, 1976

	Number	Total dwt (In Thousands)	Percent of Total dwt	Average dwt
Total	22,595	553,898	100	24,500
Tanker	5,294	301,982	54.5	57,000
Combination Oil/ Bulk/Ore Carrier (OBO)	425	44,356	8.0	104,400
Dry Cargo	16,876	207,560	37.5	12,300
Dry Bulk Carrier	3,847	105,721	19.1	27,500
Freighter	10,691	82,151	14.8	7,700
Full Container	478	6,858	1.2	14,300
Roll-On/Roll-Off	275	2,515	.5	9,100
Barge Carrier	28	995	.2	35,500
Timber Carrier	485	3,109	.6	6,400
Refrigerated	1,072	6,211	1.1	5,800

1/ Excludes U.S. Government-owned vessels.

Source: Maritime Administration and Department of the Navy.

and this holds true for all individual vessel categories except for tankers, OBOs and dry bulk and barge carriers.

By western standards Soviet tankers and dry bulk carriers are considered small and most of its general cargo vessels are technologically inefficient. These technological restrictions are the result of draft and shoreside facility limitations, with few Soviet and Communist Bloc ports capable of handling dry cargo ships larger than 23,000 dwt, tankers larger than 50,000 dwt, or modern intermodal carriers. Therefore, the present composition of the Soviet fleet reflects its historic use in the domestic and Communist Bloc trades which have been slow in developing modern port facilities and therefore did not require the development of a modern efficient fleet. This, however, is rapidly changing.

In 1975, V. Dubchak, Chief of the Scientific and Technical Administration of the Ministry of Maritime Fleet, in an article on the accomplishments of the Ninth Five Year Plan[1/] (1971-75), stated that the Soviet fleet had been modernized with the new technology of the following highly specialized vessels.

- Over 130 general purpose vessels of various dimensions
- About 30 timber carriers
- 27 tankers such as the "Sukhumi" class of 27,800 dwt and the "Pablo Neruda" class of 40,000 dwt

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1/ V. Dubchak, "Technical Progress-the Main Trend," Morskoy Flot, (October 1975), p. 1-4.

- Bulk carriers of the "Marshal Budennyy" type with a deadweight of 105,000 tons
- Vessels to transport industrial wood chips
- Full container carriers such as the "Knudozhnik Saryan" of 798 twenty-foot equivalent units (TEU)
- More than 20 vessels of the Roll-On/Roll-Off type such as the "Magnitogorsk" of 1,100 TEU, the "Skulptur Konenkov" of 774 TEU, the "Ivan Skuridin" of 242 TEU and the "Akademik Tupoleu" of 235 TEU
- 20 refrigerated ships

The "Magnitogorsk" (Photo I) and "Skulptur Konenkov" (Photo II) vessel classes are the most recent deliveries of Soviet RO/RO vessels and are similar in design to the U.S. RO/RO vessels recently delivered to the States Steamship Company. These new Soviet RO/RO vessels appeared for the first time in early 1976 and were immediately placed into operation in the U.S. foreign trade. The first vessel of the "Knudozhnik Saryan" (Photo III) containership class appeared in the Pacific trade in January 1976, and by January 1977, a total of four of these vessels were being operated in that trade.

Photo I

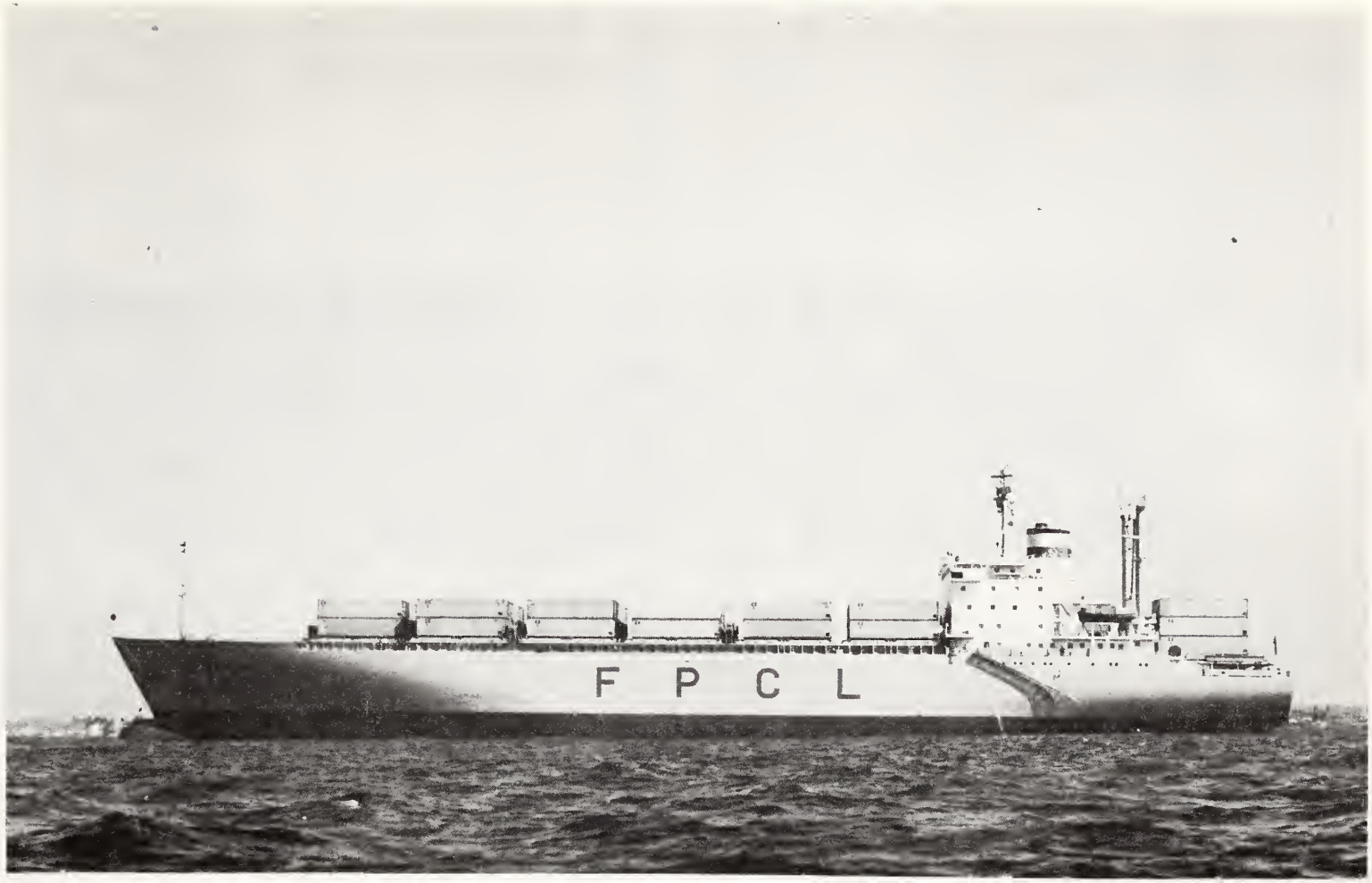
MAGNITOGORSK
Baltatlantic Line
Roll-On/Roll-Off

22,690 dwt; 1,368 TEU capacity; speed 23 knots;
Built Valmet Shipyard, Finland; Delivered 1976.

Photo II

SKULPTUR KONENKOV
Baltatlantic Line
Roll-On/Roll-Off/Container

18,460 dwt; 774 TEU capacity; speed 20.5 knots;
Built Gdansk Shipyard, Poland; Delivered 1975.



KHUDOZHNIK SARYAN
Far East Shipping Co.
Full Container

Photo III

13,300 dwt; 798 TEU capacity; speed 22 knots;
Built Warnow Werft Shipyard, East Germany;
Delivered 1975.

B. Projected Fleet Growth

Although the recent growth of the Soviet merchant fleet has caused considerable concern among the established western shipowners, their principal concern is the Soviet goal announced in the Tenth Five Year Plan, 1976-1980. That goal is:

> "To replenish the merchant fleet with highly efficient dry cargo, tanker and combined vessels with a total deadweight of approximately 5 million tons. To increase the proportion of specialized dry cargo vessels - timber carriers, container carriers, lighters, tugs, bulk cargo and other ships."2/

Today, the Soviet Union has the world's largest general dry cargo fleet; by 1980, it will also have a large number of modern container and Roll-On/Roll-Off ships in service. The Soviet intent to develop a large, technologically advanced intermodal fleet is not considered to be in line with future Soviet foreign seaborne trade vessel requirements. According to Lambert Brothers Shipping Ltd., Soviet dry and liquid bulk cargoes are estimated to be between 75 and 80 percent, by volume, of the total Soviet foreign trade.3/

Table IV is a projection of both the size and tonnage of the Soviet merchant fleet with the tonnage based on Soviet Information Service (Morflot) data. This projection shows a building program of 5.1 million dwt and a net gain in fleet size of 3.3 million dwt. The number of vessels in the fleet as of Jan. 1, 1976, is based on Department of Navy data (Table III) regardless of any substantially different tonnages released by Morflot.

2/ "U.S.S.R. Tenth Five Year Plan, 1976-1980," (Dec. 1975), p. 29.

3/ Russian Shipping: Background Data and Analysis, Lambert Shipping Limited, (London, England, May 1976), p. 8.

Table IV

Soviet Merchant Fleet
1976, 1981, 1986

Type of Vessel	1/1/1976[1] Number	1/1/1976[1] Thousand dwt	Projected Deliveries 1976-1981[2] Number	Projected Deliveries 1976-1981[2] Thousand dwt	1/1/1981[1] [3] Number	1/1/1981[1] [3] Thousand dwt	1/1/1986[4] Number	1/1/1986[4] Thousand dwt
Dry Cargo Fleet								
Breakbulk	798	6,484.2	90	534.2	777	6,218.8	756	6,050.0
Roll-On/Roll-Off	18	89.2	14	209.4	32	289.4[5]	46	508.0
Container Carriers	12	68.3	15	185.6	20	198.3[6]	42	453.0
Barge Carrier	--	--	2	78.4	2	78.4	6	235.0
Ferryboats	--	27.0	-	22.7	-	49.7	-	--
Bulk Carriers-(Dry &	114	973.7	31	781.0	99	1,616.8	110	2,266.0
Timber Carriers OBO)	399	1,832.5	49	290.0[7]	423	2,075.1	450	2,365.0
Reefers	28	127.1	4	23.5	30	142.1	32	157.0
Others	--	33.7	-	-	-	43.6	-	--
Subtotal	1,369	9,635.7	205	2,124.8	1,383	10,712.2	1,442	12,034.0
Tanker Fleet								
50,000 dwt and over	6	510.0	15	1,957.0	21	2,319.0[8]	No projection by tanker size category was attempted	
40-50,000 dwt	31	1,416.8	11	440.0	40	1,776.8[9]		
20-40,000 dwt	54	1,609.8	18	421.0[10]	72	2,030.8		
10-20,000 dwt	195	1,365.7	16	187.0	191[11]	1,120.3		
less than 10,000 dwt	--	569.1	--	--	--	481.6		
Subtotal	286	5,471.4	60	3,005.0	334	7,728.5	370	10,985.0
Total	1,655	15,107.1	265	5,129.8	1,717	18,440.7	1,812	23,019.0[12]

1/ Except as noted, all tonnage figures are based on Morflot data.

2/ All projected deliveries, by number and tonnage, are from Fairplay International, "World Ships on Order," May 20, 1976. (Except as noted, this column represents only current orders. It is likely that the totals will be actually realized through higher construction levels with correspondingly higher deletion rates. Without an increase in deletion rates, the 1976-1981 figure would represent a minimum fleet construction level.)

3/ The projected 1981 fleet of 1,717 ships is arrived at by taking the existing fleet on 1/1/76 of 1,655 ships, plus new deliveries of 265 ships, and deletions of 210 ships. Therefore, the net addition to the fleet over this period, 57 ships, results in the 1981 projection.

4/ The 1986 projection is based upon historical data of the Soviet fleet since 1959 and the yearly increases in size. It has also been assumed that there will be no restrictions on the Soviet government acquiring vessels since a substantial portion of their fleet is built in foreign yards and that there will be no restrictions on the availability of capital to purchase and operate the vessels.

5/ It was assumed that no RO/RO vessels would be deleted from the Soviet fleet due to their relatively low age, therefore, the 1981 total of existing fleet plus existing new construction orders should be 32 vessels of 298,600 dwt instead of 32 vessels of 289,400 dwt.

6/ It was assumed that no container vessels are deleted from the Soviet fleet due to their relatively low age, therefore, the 1981 total of existing fleet plus existing new construction orders should be 27 vessels of 267,600 dwt instead of 20 vessels of 198,300 dwt.

7/ At the present time there are no timber carriers on order according to Fairplay International. The number and tonnage of timber carriers is the required new deliveries with 25 deletions to the existing fleet if the 1/1/81 projected tonnage is met.

8/ It was assumed that no large tankers of 50,000 dwt or over would be deleted from the Soviet fleet due to their relatively low age, therefore, the 1981 total of existing fleet plus new construction should be 21 tankers of 2,467,000 dwt instead of 2,319,000 dwt.

9/ It was assumed that no tankers in the 40-50,000 dwt category are deleted from the Soviet fleet due to their relatively low age, therefore, the 1981 total of existing fleet plus new construction should be 42 tankers of 1,856,800 dwt instead of 40 tankers of 1,776,800 dwt.

10/ At the present time there are only five tankers totaling 118,600 dwt on order in this cateogry. The additional 13 tankers are the minimum required new deliveries with no deletions to the existing fleet if the 1981 projected tonnage is met.

11/ The 191 tankers reflects the total number of tankers under 20,000 dwt in 1981 based on the existing fleet plus new construction orders with a deletion of approximately 52 tankers of 519,900 dwt to meet the projected tonnage.

12/ Excludes ferryboats and "others" vessel categories. Includes the maximum levels of full container and RO/RO explained in footnotes 4 and 5 above.

Source: Morflot data; "World Ships on Order," Fairplay International, May 20, 1976.

Judging from the Soviet orderbook, the goals of the Soviet building program to expand its fleet with new technology vessels as announced in the Tenth Five Year Plan and projected through 1985 seem well on their way towards being accomplished. Total ships on order for the Soviet fleet in May 1976, according to Fairplay International, were as follows:

- 64 breakbulk vessels totaling 211,410 dwt with an average tonnage of 3,300 -- this is 40 percent of the breakbulk target for 1980;

- 23 partial containerships (capacity of more than 250 TEU) totaling 301,902 dwt with an average tonnage of 13,126 -- this is 57 percent of the breakbulk target for 1980;

- 15 full containerships totaling 185,574 dwt with an average tonnage of 12,371 -- this is more than 100 percent of the containership target for 1980 and 48 percent for 1985;

- 14 Roll-On/Roll-Off vessels totaling 209,440 dwt with an average tonnage of 14,960 -- this is more than 100 percent of the RO/RO target for 1980 and 50 percent for 1985;

- 2 barge carriers totaling 78,400 dwt with an average tonnage of 39,200 -- this is 100 percent of the barge carrier target for 1980 and 33 percent for 1985;

- 4 OBO carriers totaling 453,000 dwt with an average tonnage of 113,250 -- this is 58 percent of the bulk carriers target for 1980;

- 25 bulk carriers totaling 373,965 dwt with an average tonnage of 14,958 -- this is 48 percent of bulk carriers target for 1980;

- 4 refrigerated vessels totaling 23,520 dwt with an average tonnage of 5,880 -- this is 100 percent of the reefer target for 1980;

- 15 tankers over 50,000 dwt totaling 1,957,000 dwt with an average tonnage of 130,467 -- this is 100 percent of target for tankers over 50,000 dwt for 1980;

- 11 tankers between 40,000 and 50,000 dwt, totaling 440,000 dwt -- this is 100 percent of target for tankers 40-50,000 dwt for 1980;

- 5 tankers between 20,000 and 40,000 dwt totaling 118,600 dwt with an average tonnage of 23,720 -- this is 28 percent of target for tankers 20-40,000 dwt for 1980; and

- 16 tankers under 20,000 dwt totaling 186,550 with an average tonnage of 11,659 -- this is 100 percent of target for tankers under 20,000 dwt for 1980.

This May 1976 construction orderbook of 198 vessels totaling 4.5 million dwt represents on an overall basis about 75 percent by number and 89 percent by tonnage of the projected building program for the 1976-1980 period. Because the extent of vessel deletions through 1985 are not known, the current orderbook can not be shown as a percentage of the total new construction required to achieve the 1985 projected fleet. Compared with the world orderbook in May 1976, Soviet orders for dry cargo and intermodal vessels were the largest by number and third by deadweight tonnage. By contrast, tanker construction of the Soviet Union was 5th by number and 9th by deadweight tonnage, and for dry bulk and combination carriers, 9th by number and 10th by tonnage.

Since the Morflot/Maritime Administration fleet projection was made, the size and composition of the Soviet orderbook has changed slightly. In early 1977, Soviet new vessel construction was 207 vessels of 4.6 million dwt making it the 4th largest by number of vessels and 10th by deadweight tonnage. In comparison

with other nations' orderbooks, Soviet dry cargo and intermodal vessels are still the largest by number and 6th by deadweight tonnage; tanker construction 3rd by number and 5th by deadweight tonnage; and dry bulk construction 8th by number and deadweight tonnage. Judging from these orders the Soviet government is continuing to place an emphasis on the new technology of dry cargo/intermodal vessel construction and increasing its emphasis on larger tanker and dry bulk vessel construction.

a. Liner Vessels

Based on the Morflot projection, the intermodal fleet (container carrier, Roll-On/Roll-Off, barge carrier) will increase from 30 vessels totaling 157,500 dwt to 54 vessels totaling 566,100 dwt by Jan. 1, 1981. This projection of growth in the intermodal fleet appears conservative considering the age of existing vessels. All intermodal vessels, including partial containerships, in the Soviet merchant fleet have been delivered since 1972. Therefore, it seems unlikely there will be any intermodal vessel deletions prior to the end of 1980. In addition, the May 1976 Fairplay International "World Ships on Order," reports 31 Soviet intermodal vessels under construction or on order with deliveries scheduled by the end of 1979. If these figures are correct and added to the Department of Navy data in Table II, the size of the intermodal fleet would be 61 vessels totaling 644,600 dwt by the end of 1979.

The Soviet intermodal fleet capacity at the end of 1975 was 30,000 twenty-foot equivalent units (TEU) which is approximately 4.5 percent of the total world capacity.

The present Soviet construction orders of intermodal vessels represent a new capacity of approximately 26,000 TEU for about 13 percent of the total world TEU orderbook. At present building rates for the Soviets and the rest of the world, the Soviet merchant marine by the end of 1980 could represent about 6 percent of the total world TEU capacity.

The Morflot/Maritime Administration projection (Table IV) shows that the liner (conventional breakbulk and intermodal) portion of the Soviet merchant fleet at the end of 1980 would consist of between 861 and 868 vessels totaling approximately 7 million dwt. While the liner portion of the Soviet fleet will decrease from 45 percent in 1976 to 38 percent in 1980, there will be a net gain of nearly 250,000 tons of modern, fast, and efficient liner vessels with the major portion being intermodal types. The Maritime Administration projection of Soviet fleet expansion to 1986 continues the development of the liner vessels in the Tenth Five Year Plan, so that by the end of 1985 the liner fleet would consist of an estimated 850 vessels totaling approximately 7.2 million dwt. The liner portion of the fleet will continue to decrease to approximately 31 percent by 1985. However, the total deadweight tonnage of large intermodal vessels is projected to increase by more than 600,000 tons.

In summary, the continuing growth of the intermodal fleet is based on the apparent long-term commitment that the Soviet Union has made to operate a liner fleet in the western trades

for the purposes of earning hard currency and expanding their political and economic influence in the traditional maritime markets. The decrease in the breakbulk category reflects the emphasis on the development of intermodal vessels announced in the Tenth Five Year Plan. The assumption of accelerated growth in barge carrier vessels from two in 1981 to six by 1986, recognizes that the Soviet Union will realize the full potential of these vessels for assisting in the expansion of Soviet operations on the inland waterway systems of the Soviet Union and Europe.

b. Tanker Vessels

At the same time the liner fleet is growing, the tanker fleet will be making substantial gains. During the 5 year period (1976-1980) the tanker fleet is expected to receive about 3 million tons of new capacity with a net gain of 2.3 million tons. About 94 percent of this new tanker tonnage construction will be for tankers larger than 20,000 dwt and 65 percent for tankers over 50,000 dwt. It should be noted that the Soviet development of large tankers, those over 50,000 dwt, is relatively recent, and unless Soviet Bloc deepdraft port development keeps pace, these vessels cannot be employed in the Soviet oil trades.

By the beginning of 1981, the tanker fleet, in terms of deadweight tonnage, will increase to approximately 42 percent of the total fleet as compared to 36 percent on Jan. 1, 1976.

Based on this growth and projected worldwide tanker surplus through 1980, the Soviet tanker fleet expansion could exacerbate the world overtonnaging problems if they pursue practices similar to those followed in the liner trades. These practices are covered in detail in Section IV.

During the 1981-1986 period, we expect a slightly accelerated growth in the tanker fleet as a result of the Soviet Union becoming a net importer of oil during the early 1980's. By increasing the carrying capacity of their tanker fleet, (and therefore transporting a larger portion of their projected oil imports in their own vessels) they would be able to reduce the balance of payments deficit due to Soviet oil imports.

c. Dry Bulk Vessels

The dry bulk fleet expansion is projected to continue throughout the 1981-1986 period at a rate of growth similar to that announced by Morflot for the 1976-1980 program. During the Tenth Five Year Plan, the Soviets are projecting the delivery of nearly 800,000 tons of new dry bulk carriers and after deletions will experience a net gain of nearly 650,000 dwt by 1981. This gain is approximately a 66 percent increase over the 1976 Soviet dry bulk fleet.

IV. COMPETITIVE PRACTICES IN THE U.S. FOREIGN TRADE

A. U.S.-U.S.S.R. Maritime Agreement

Signed on Oct. 14, 1972, this Agreement established the necessary link in the continuation of an expanding commercial relationship with the Soviet Union. Provisions of the Agreement provided for: 1) Open access to 40 specified ports in the Soviet Union and United States by vessels of the other nation upon 4 days' advance notice to the appropriate authorities; 2) equal and substantial sharing of both government's national flag merchant marines in the carriage of oceanborne commerce between the two nations, with provisions for the carriage of trade by third-flag vessels; 3) establishing bulk freight rates to be paid U.S.-flag vessels when carrying bulk cargoes, especially agricultural commodities and products, between the U.S. and the Soviet Union.

According to the terms of the Maritime Agreement, the U.S., Soviet and third-flag fleets are to share the U.S.-U.S.S.R. bilateral trade on a one-third basis for each. However, as Table V shows, the performances of the U.S. and Soviet fleets only in limited instances have exceeded participation levels greater than the one-third authorized. The main reason the Soviet fleet does not carry its one-third share of these bilateral cargoes is that the Soviet government prefers to charter third-flag bulk tonnage.

The 1972 U.S.-U.S.S.R. Maritime Agreement provided the Soviet merchant fleet with the necessary operating access for

Table V
U.S. - U.S.S.R. Bilateral Oceanborne Foreign Trade by Type of Service
(in long tons)

Liner Cargo

Accounting Period	U.S.-Flag	Percent	U.S.S.R.-Flag	Percent	Third-Flag	Percent	Total Trade
11/22/72-12/31/73	6,271	2	143,276	53	118,994	44	268,541
1/1/74-12/31/74	122,192	50	69,944	29	51,587	21	243,723
1/1/75-12/31/75	99,579	32	131,366	42	78,536	25	309,481
1/1/76-12/31/76	144,232	41	170,151	48	38,291 est.	11	352,674 est.

Grain Trade

Accounting Period	U.S.-Flag	Percent	U.S.S.R-Flag	Percent	Third-Flag	Percent	Total Trade
7/1/72 -12/31/73	3,502,100	18	3,236,100	17	12,843,700	66	19,581,900
1/1/74-12/31/74	1,474,700	48	713,800	23	903,400	39	3,091,900
1/1/75-12/31/75	1,852,800	23	1,700,200	21	4,400,900	55	7,953,900
1/1/76-12/31/76	3,036,700	26	2,411,200	21	6,256,300	53	11,704,200

Other Bulk - Dry & Liquid

Accounting Period	U.S.-Flag	Percent	U.S.S.R.-Flag	Percent	Third-Flag	Percent	Total Trade
11/22/72-12/31/73	578,500	34	53,600	3	1,090,500	63	1,722,600
1/1/74-12/31/74	132,500	10	50,400	4	1,117,900	86	1,300,800
1/1/75-12/31/75	--	-	278,700	17	1,401,400	83	1,680,100
1/1/76-12/31/76	33,700	4	322,400	39	472,300	57	828,400

establishing a liner service in the U.S. oceanborne trades. With the open access to 40 ports on a four day advance notice, Soviet liner vessels have been able to trade without the restrictions that existed prior to the Agreement.

On Dec. 29, 1975, the Department of Commerce and the Ministry of Merchant Marine of the U.S.S.R. signed a new Maritime Agreement extending through Dec. 31, 1981. This Agreement supplants the original U.S.-U.S.S.R. Maritime Agreement signed in 1972.

B. Recent Performance

The Soviet merchant fleet initiated regular commercial service on the West Coast in 1971. These operations have consistently expanded through 1976. Prior to 1971, the Soviets operated vessels in U.S. West Coast foreign trade in limited tramp service. On the East and Gulf Coasts and in the Great Lakes, Soviet vessels did not call in the United States for more than 20 years because of the International Longshoremen Association's refusal to handle cargoes carried by Soviet vessels. Between 1971 and 1976, the Soviet fleet increased its cargo tonnage participation in the U.S. trades from 261,000 to 5.7 million long tons, an increase of nearly 22 times. The percent participation in the U.S. trades during the same period increased from 0.1 percent to 0.8 percent. At the same time this growth was occurring, the value of cargoes carried by the Soviets increased from $52 million to $2.7 billion, an increase of more than 51 times. This growth in value of cargo represented an

increase from 0.1 percent to 1.8 percent of the U.S. trade. Table IV details by type of service (liner, non-liner and tanker) the Soviet fleet participation in the U.S. oceanborne foreign trade by tonnage and value of cargo carried.

Similar growth trends occurred in the liner segment of the Soviet merchant fleet operations in the U.S. trades. Between 1971 and 1976, there was more than an eightfold increase in the tonnage of liner cargoes carried and nearly a 45-fold increase in the value of liner cargoes carried. These trends represent a liner growth from 160,000 tons to 1.4 million long tons and $38 million to $1.7 billion by value of cargo. In order to achieve this phenomenal growth in the U.S. liner trades, the various Soviet companies have actively pursued a practice of rate cutting, generally as an independent carrier, to enable their capture of an initial share of the trade and then expand upon that share in successive years.

Based on the value of cargo carried by the Soviet liner fleet in the U.S. oceanborne trade, we can estimate the freight revenues earned by the fleet. Assuming that the rates on liner cargo are between 10-20 percent of the value of the cargo, the Soviet merchant marine would have earned an estimated $170 million to $340 million in 1976, $125 million to $250 million in 1975, $105 million to $210 million in 1974 and $4 million to $8 million in 1971. Additional freight revenues would have

Table VI
Value and Tonnage of Commercial Cargo
Carried in U.S. Oceanborne Foreign
Trade by U.S.S.R. and U.S. Vessels[1]

	Liner				Non-Liner				Tanker				Totals by Flag			
	Thousands of Long Tons	Percent	Millions of $ Value	Percent	Thousands of Long Tons	Percent	Millions of $ Value	Percent	Thousands of Long Tons	Percent	Millions of $ Value	Percent	Thousands of Long Tons	Percent	Millions of $ Value	Percent
1976[2]																
Soviet Union																
Imports	639	2.9	987	2.6	230	.2	90	.6	230	.1	19	.1	1,099	.2	1,096	1.3
Exports	795	2.8	929	2.5	2,860	1.6	492	2.1	947	4.6	136	3.4	4,602	2.0	1,557	2.4
Total	1,434	2.9	1,916	2.5	3,090	1.1	582	1.5	1,177	.3	155	.5	5,701	.8	2,653	1.5
United States																
Imports	6,842	31.2	12,096	31.9	1,912	1.8	311	2.1	10,027	3.0	910	3.0	18,781	4.1	13,240	16.0
Exports	8,538	30.5	11,818	31.2	3,108	1.7	760	3.3	3,359	16.4	527	13.2	15,005	6.5	13,317	20.4
Total	15,380	30.8	23,914	31.5	5,020	1.7	1,071	2.8	13,386	3.8	1,437	4.2	33,786	4.9	26,422	17.9
Total U.S. Trades																
Imports	21,960		37,911		107,192		14,833		333,627		29,990		462,779		82,734	
Exports	28,028		37,894		182,062		23,249		20,482		3,990		230,572		65,133	
Totals by Service	49,988		75,805		289,254		38,082		354,109		33,980		693,351		147,867	
1975																
Soviet Union																
Imports	458	2.4	672	2.3	288	.3	81	.7	737	.3	67	.3	1,484	.4	821	1.3
Exports	542	2.2	578	1.7	2,083	1.2	380	1.6	438	2.5	76	2.3	3,063	1.4	1,034	1.7
Total	1,000	2.3	1,250	2.0	2,371	.9	461	1.3	1,175	.4	143	.5	4,547	.7	1,855	1.5
United States																
Imports	5,901	30.8	9,379	31.6	1,469	1.5	236	1.9	11,253	4.0	951	4.0	18,623	4.7	10,566	16.1
Exports	7,701	30.7	10,610	30 9	2,304	1.3	776	3.2	2,719	15.6	414	12.6	12,724	5.8	11,800	19.0
Total	13,602	30.7	19,989	31.2	3,773	1.4	1,012	2.8	13,972	4.7	1,365	5.1	31,347	5.1	22,366	17.5
Total U.S. Trade																
Imports	19,132		29,689		98,065		12,272		278,535		23,566		395,732		65,527	
Exports	25,118		34,346		177,267		24,344		17,450		3,291		219,835		61,981	
Totals by Service	44,250		64,035		275,332		36,616		295,985		26,857		615,567		127,508	
1974																
Soviet Union																
Imports	499	2.2	701	2.1	264	.2	58	.4	286	.1	29	.1	1,049	.3	788	1.2
Exports	574	2.0	350	1.1	1,321	.8	226	1.1	399	2.0	35	.9	2,294	1.0	611	1.1
Total	1,073	2.1	1,051	1.5	1,585	.6	284	.8	685	.2	64	.2	3,343	.5	1,399	1.1
United States																
Imports	6,624	29.0	10,142	31.0	2,782	2.5	266	2.0	18,232	6.6	1,495	6.7	27,638	6.8	11,903	17.4
Exports	8,726	30.5	9,300	30.2	2,221	1.3	547	2.6	2,279	11.7	288	7.8	13,226	6.0	10,135	18.1
Total	15,350	29.8	19,442	30.6	5,003	1.8	813	2.3	20,511	7.0	1,783	6.9	40,864	6.5	22,038	17.7
Total U.S. Trade																
Imports	22,838		32,676		110,984		13,345		274,890		22,277		408,712		68,298	
Exports	28,580		30,766		171,738		21,407		19,485		3,698		219,803		55,871	
Totals by Service	51,418		68,298		282,722		34,752		294,375		25,975		628,515		124,169	
1971																
Soviet Union																
Imports	133	.6	35	.2	56	.1	13	.2	-	-	-	-	189	.1	48	.2
Exports	27	.1	3	-	23	-	1	-	22	.1	-	-	72	-	4	-
Total	160	.4	38	.1	79	-	14	.1	22	-	-	-	261	.1	52	.1
United States																
Imports	4,801	22.3	5,142	29.3	887	.9	84	1.2	7,876	4.4	175	4.7	13,564	4.6	5,401	19.4
Exports	5,328	23.4	4,061	27.3	3,905	3.0	328	4.9	1,579	10.7	96	8.0	10,812	6.6	4,485	19.7
Total	10,129	22.9	9,203	28.4	4,792	2.1	412	3.1	9,455	4.9	271	5.5	24,376	5.3	9,886	19.6
Total U.S. Trade																
Imports	21,479		17,541		94,714		6,570		177,785		3,661		293,978		27,772	
Exports	22,730		14,858		126,027		6,597		14,699		1,198		163,456		22,653	
Totals by Service	44,209		32,399		220,741		13,167		192,484		4,859		457,434		50,425	

1/ Includes the bilateral trade of the U.S. and U.S.S.R.
2/ Preliminary data

been earned in the non-liner and tanker carriage of cargoes; however, earnings from these trades would be substantially less than the liner.

During the 1972-1976 period, the Soviet non-liner paricipation increased from 79,000 tons to 2.4 million tons and by value of cargo, from $14 million to $461 million. Similar trends occurred in the tanker trade which increased from 22,000 tons to 1.1 million tons, with cargo values increasing from less than $1 million to $143 million. Both the non-liner and tanker trade growths reflect the exporting of grains from the United States to the Soviet Union under the Maritime Agreement of 1972 and the resulting petroleum backhauls from the Mediterranean, Black Sea and Persian Gulf areas.

C. Trade Areas Serviced

The major liner routes of the Soviet carriage are the East Coast to United Kingdom, Continent and Scandinavia (Trade Route 5-6-7-8-9) and the Pacific Coast to Far East (Trade Route 29). In 1971 the Soviets were not operating in the East Coast - European trade, but by 1976 they carried over 4 percent of the U.S. imports/exports on the route. In 1971 the Soviets carried nearly 3 percent on the Pacific-Far East service, and by 1976 this had grown to nearly 6 percent. Other major Soviet liner growth has taken place on the following trade routes: the Atlantic, Gulf and Pacific to Indonesia and Malaysia (Trade Route 17), the Gulf to United Kingdom and Continent (Trade Route 21), and the Great Lakes to Europe (Trade Route 32 and 34.) It should be noted

that all routes except Trade Route 32 and 34 have a substantially larger carriage of cargo carried by U.S.-flag vessels. Table VII summarizes the above trades for 1971, 1974, 1975, and 1976. The specific U.S. trade routes having major Soviet fleet participation are:

TR 5-7-8-9 - North Atlantic to United Kingdom and Continent
TR 6 - North Atlantic to Scandinavia and Baltic
TR 17 - Atlantic, Gulf and Pacific to Indonesia and Malaysia
TR 21 - Gulf to United Kingdom and Continent
TR 29 - Pacific Coast to Far East
TR 32 & 34 - Great Lakes to Europe

Other trade routes with Soviet liner services are:

TR 4 - Atlantic to Caribbean
TR 10 - North Atlantic to Mediterranean and Black Sea
TR 11 - South Atlantic to Europe and United Kingdom
TR 12 - Atlantic to Far East
TR 16 - Atlantic & Gulf to Australia and New Zealand
TR 18 - Atlantic & Gulf to India, Persian Gulf and Red Sea
TR 19 - Gulf to Caribbean and East Coast Mexico
TR 22 - Gulf to Far East
TR 26 - Pacific to Western Europe
TR 27 - Pacific to Australia and New Zealand
TR 28 - Pacific to Southwest Asia, Red Sea and Gulf of Aden

Other U.S. trade routes are shown in Figure I.

The past four years have seen a similarly dramatic growth in the number of Soviet vessels operating in the U.S. trades. During 1972, the liner fleet employed 55 vessels to make 102 voyages into U.S. ports and in 1975, 297 vessels made 470 voyages. This nearly fivefold increase in vessels and fourfold increase in voyages emphasizes the strong commitment the Soviets are making in western trades and particularly in the U.S. trades. Table VIII details by vessel type the number of vessels and voyages into U.S. ports between 1972-75.

Table VII
U.S.S.R. Flag Participation in U.S. Liner Oceanborne Foreign Trade on Certain Trade Routes[1]

Total Tons - Calendar Years 1971, 1974, 1975 and 1976

	1971				1974				1975				1976			
TR	U.S.	Percent	U.S.S.R.	Percent	U.S.	Percent	U.S.S.R.	Percent	U.S.	Percent	U.S.S.R.	Percent	U.S.	Percent	U.S.S.R.	Percent
5-6-7-8-9	1,620,758	29.57	-	-	2,313,279	34.66	328,912	4.92	1,655,143	32.35	271,059	5.30	1,824,802	24.24	319,104	4.24
17	413,915	30.88	-	-	526,989	29.68	82,272	4.63	572,302	35.77	136,834	8.55	727,432	39.50	99,786	5.42
21	190,026	5.44	-	-	1,307,469	32.29	102,387	2.53	1,190,774	34.86	99,327	2.91	1,553,353	43.14	128,139	3.56
29	1,824,141	33.97	159,959	2.97	2,924,395	39.70	470,406	6.38	2,199,407	34.46	403,311	6.32	2,831,466	34.76	486,148	5.96
32-34	1,299	0.07	-	-	4,616	0.98	72,065	11.23	39,003	6.81	41,595	7.28	64,353	8.59	58,503	7.81
Other	5,841,737	28.44	19	*	8,512,266	33.22	15,275	.06	8,545,366	28.38	48,141	.16	8,365,997	29.75	343,699	1.22
Total	9,891,876	21.05	159,978	0.36	15,589,014	29.46	1,071,317	2.02	13,630,266	30.26	1,000,267	2.22	15,367,403	30.74	1,434,379	2.87

1/ Includes bilateral U.S.-U.S.S.R. trade

* Less than 0.005 percent

Source: Maritime Administration

Figure I

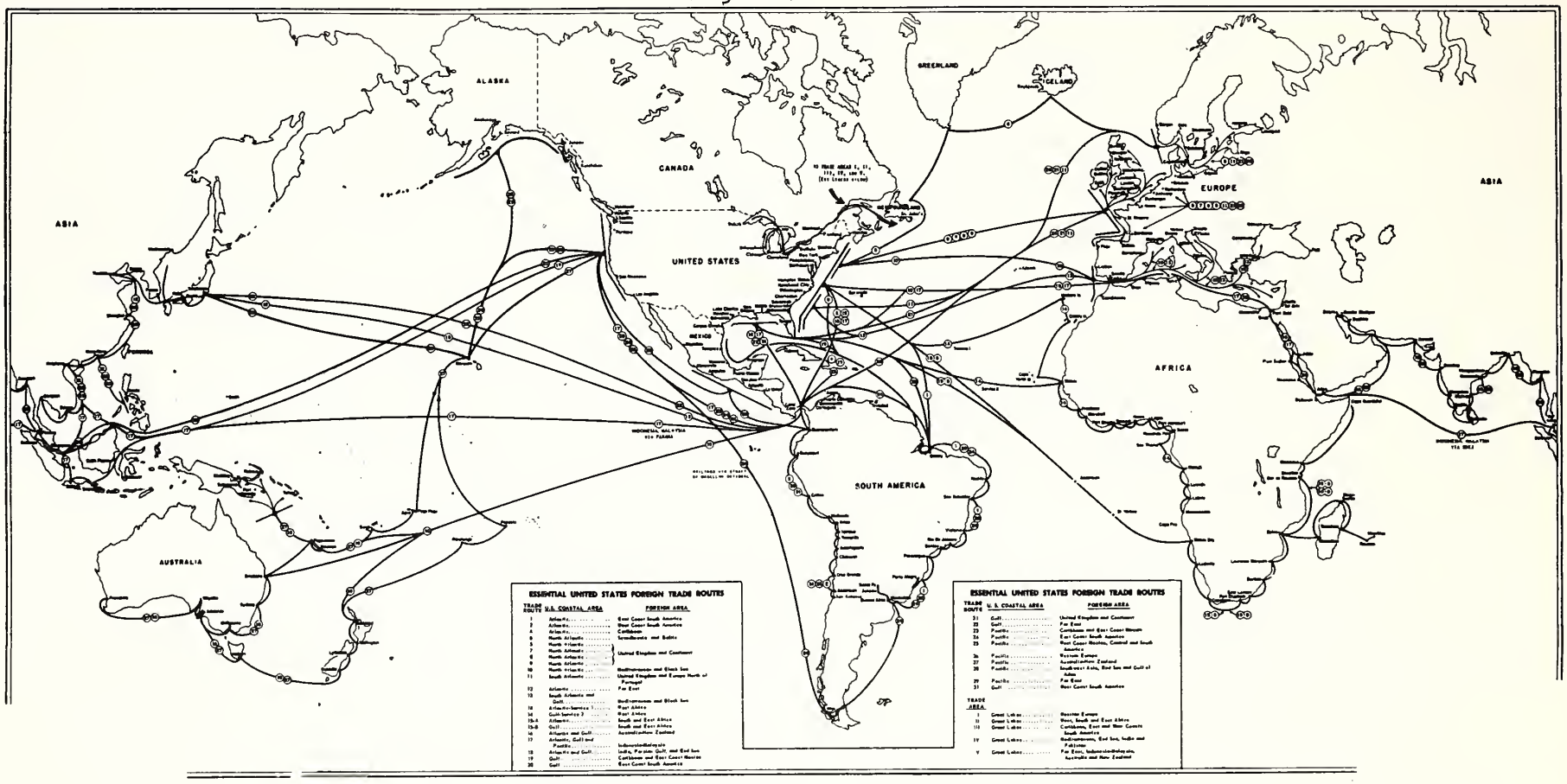

ALASKA
CANADA
GREENLAND
ICELAND
ASIA
UNITED STATES
MEXICO
EUROPE
AFRICA
SOUTH AMERICA
AUSTRALIA
ASIA
ESSENTIAL UNITED STATES FOREIGN TRADE ROUTES
TRADE ROUTE
U.S. COASTAL AREA
FOREIGN AREA
1 Atlantic East Coast South America
2 Atlantic West Coast South America
4 Atlantic Caribbean
5 North Atlantic Scandinavia and Baltic
6 North Atlantic United Kingdom and Continent
7 North Atlantic
8 North Atlantic
9 North Atlantic
10 North Atlantic Mediterranean and Black Sea
11 South Atlantic United Kingdom and Europe North of Portugal
12 Atlantic Far East
13 South Atlantic and Gulf Mediterranean and Black Sea
14 Atlantic-Jamaica West Africa
14 Gulf-Jamaica 2 West Africa
15-A Atlantic South and East Africa
15-B Gulf South and East Africa
16 Atlantic and Gulf Australian Zealand
17 Atlantic, Gulf and Pacific Indonesia-Malaysia
18 Atlantic and Gulf India, Persian Gulf, and Red Sea
19 Gulf Caribbean and East Coast Mexico
20 Gulf East Coast South America
ESSENTIAL UNITED STATES FOREIGN TRADE ROUTES
TRADE ROUTE
U. S. COASTAL AREA
FOREIGN AREA
21 Gulf United Kingdom and Continent
22 Gulf Far East
23 Pacific Caribbean and East Coast Mexico
24 Pacific East Coast South America
25 Pacific West Coast Mexico, Central and South America
26 Pacific Western Europe
27 Pacific Australia-New Zealand
28 Pacific Southwest Asia, Red Sea and Gulf of Aden
29 Pacific Far East
31 Gulf West Coast South America
TRADE AREA
I Great Lakes Western Europe
II Great Lakes West, South and East Africa
III Great Lakes Caribbean, East and West Coasts South America
IV Great Lakes Mediterranean, Red Sea, India and Pakistan
V Great Lakes Far East, Indonesia-Malaysia, Australia and New Zealand

Table VIII

Number of Soviet Vessels and Voyages by Vessel Type Calling at U.S. Ports

	Liner		Tanker		Miscellaneous 1/		Total	
	No. of Vessels	No. of Voyages	No. of Vessels	No. of Voyages	No. of Vessels	No. of Voyages	No. of Vessels	No. of Voyages
1972	55	102	4	4	-	-	59	106
1973	202	324	26	27	12	17	240	368
1974	172	332	25	29	21	56	218	417
1975	297	470	45	52	42	69	384	591

1/ Miscellaneous vessels include: fishing, passenger, hydrofoil, tug, icebreaker, naval research and naval hydrographic.

Source: Naval Ocean Surveillance Information Center

During this period, the average number of voyages per commercial vessel remained between one and two. However, with the large increase in liner vessel calls from 1974 to 1975, there was a significant drop in the average cargo tonnage carried per voyage of 3,200 to 2,100 tons.

Further analysis, Table IX, shows that the voyages per vessel vary with the area of operation. In 1975 commercial vessels on the West Coast had a ratio of slightly more than two voyages per vessel while the other three coasts were: East Coast - 1.6/1; Great Lakes - 1.4/1 and the Gulf Coast - 1.3/1. These ratios are the result of the Soviet fleet employing several different vessels throughout the year instead of a few vessels making several voyages. It should be noted that in the compilation of Tables VIII and IX, vessels that performed voyages to two or more coasts during one visit to U.S. waters are counted as a vessel and voyage at each coast. This occasional double counting provides a better picture of the total number of vessels and voyages made available to shippers on the various U.S. coasts.

D. Types of Commodities

While the Soviet merchant marine was expanding its participation in the U.S. oceanborne foreign trade, a major change in the types of commodities carried was also taking place. In 1971, the top 20 commodities carried by the Soviet fleet were basically low-valued breakbulk cargoes of semi-finished industrial products and bulk commodities such as petroleum products and feed for animals. There was some carriage of

Table IX

Commercial Soviet Shipping
by U.S. Coast

	1972		1973		1974		1975	
	No. of Vessels	No. of Voyages	No. of Vessels	No. of Voyages	No. of Vessels	No. of Voyages	No. of Vessels	No. of Voyages
East Coast	2	2	38 1/	59	30	70 2/	88 3/	139
Gulf Coast	23	23	116 1/	143	115	153 2/	156 3/ 4/	198
West Coast	34	81	43	116	31	106	71 4/	148
Great Lakes	--	--	31	33	21	32	27	37
Miscellaneous	--	--	12	17	21	56	42	69
Total	59	106	240	368	218	417	384	591

1/ Six ships made six voyages that included port calls at both East/Gulf Coasts on same voyage.

2/ Seven voyages included port calls at both East/Gulf Coasts on the same voyage.

3/ Ten ships made port calls at both East/Gulf Coasts on same voyage.

4/ One ship made port calls at both West/Gulf Coasts on same voyage.

Source: Naval Ocean Surveillance Information Center.

high-valued cargoes such as sound recorders, machinery and telecommunications apparatus, but even a ranking by value only placed the most significant of these in 10th place.

By 1976, however, the Soviet fleet was carrying sizable amounts of high-valued liner cargoes. Of the top 20 commodities by value, 13 were high-valued and 7 were in the top 10. These 13 commodities were machinery/appliances N.E.C.[1/]; machinery for specific industry; metalworking machinery; telecommunications apparatus; agricultural machinery; road motor vehicles; sound recorders; electrical machinery N.E.S.[2/]; baby carriages, toys and games; office machines; electric refrigerators and household appliances; and power generating machinery; which represented nearly 36 percent of the total value of cargoes carried in 1976.

This trend was already apparent in 1974 when 8 high-valued commodities placed in the top 20, representing nearly 24 percent of the total value of cargoes. Appendix I ranks the top 20 commodities for 1976, 1975, 1974, and 1971, by tonnage and value.

E. Marketing Practices - Liner Service Operations

To achieve its trade penetration into the U.S. markets, the U.S.S.R. has established regular liner service from the four U.S. coasts. By providing liner service at reduced rates, U.S.S.R. liner fleet marketing practices are designed to convince U.S. shippers to use Soviet vessels. Appendix II A-C, gives the

1/ N.E.C. - Not elsewhere classified

2/ N.E.S. - Not elsewhere specified

specific details of the liner services as to ports of call and vessels operated in the service during May-July 1976. These Soviet liner companies are within the organization of the Ministry of Merchant Marine and are therefore directly controlled by the Soviet government.

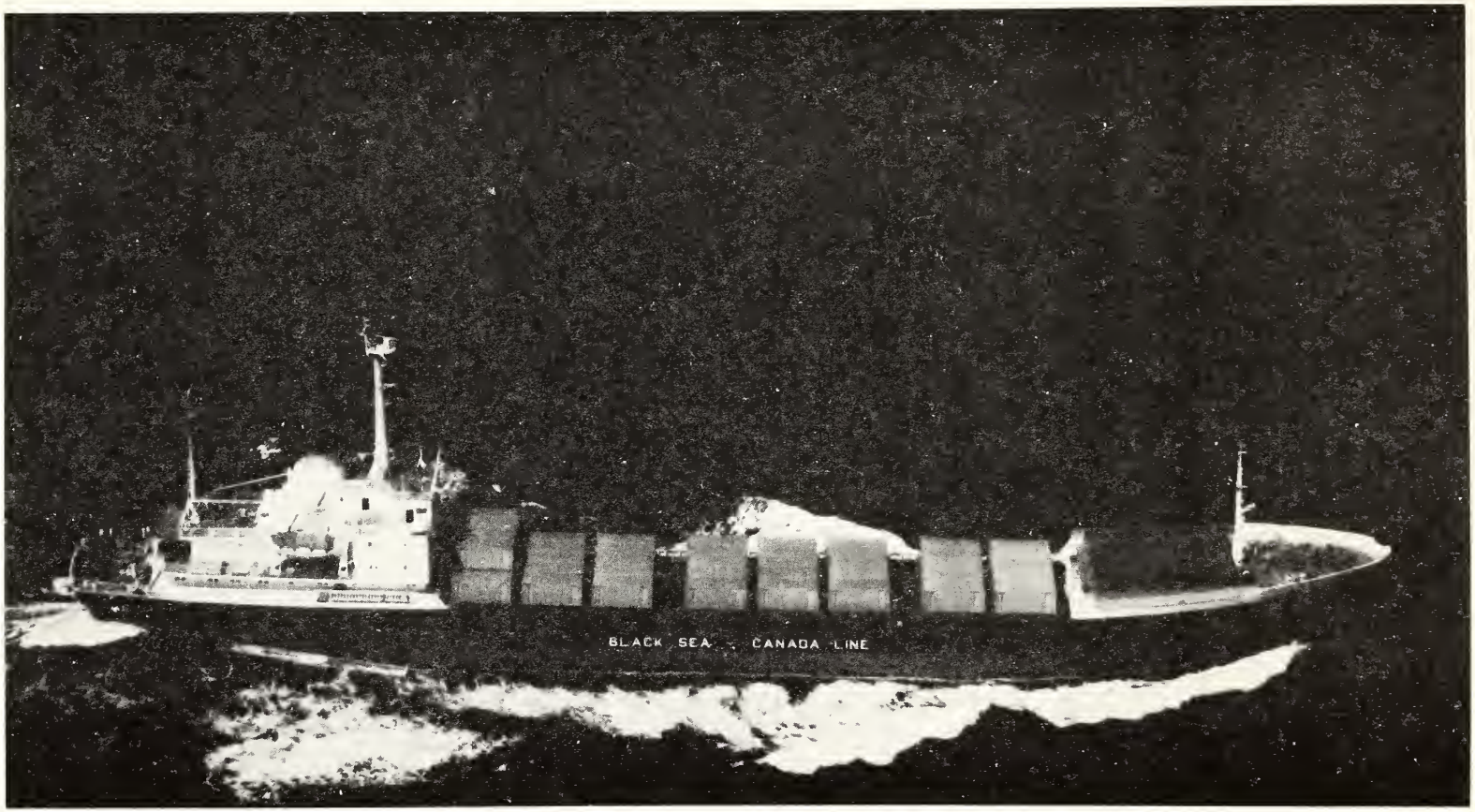
The Far East Shipping Company (FESCO) operates from the Pacific Coast to the Far East. (See Appendix II A for service details.) FESCO plans to increase its container capacity throughout 1977 by replacing the six 12,000 dwt partial containerships of 360 twenty-foot equivalent units (TEU) with five new 13,300 dwt containerships of 798 TEU. Early in 1976, the first full containership, "Knudozhnik Saryan" began operations and by early January 1977, the "Knudozhnik Iogansen," the "Knudozhnik Petrovsky," and the "Knudozhnik Zhukov" had been delivered with a fifth and last new vessel scheduled for delivery in 1977. The TEU capacity of the service has increased from 2,196 to 3,900 -- almost a 100 percent increase in about 1 year. By nearly doubling its capacity, FESCO could increase its carriage on Trade Route 29 to around 8 percent in 1978 at 1976 cargo volumes or about 7 percent if trade were to grow at 10 percent per year. This of course assumes the Soviets remain as an independent carrier. The evidence from 1974-75 experience when trade fell off on Trade Route 29 indicates that the Soviet fleet held its market share whereas the U.S. did not. This would indicate the strength of the Soviet practice of rate cutting as a marketing technique for capturing and maintaining a share of the U.S. liner trades. Their market share did decrease

slightly in 1976, while their cargo tonnage increased substantially -- the result of a sizeable increase in the total liner trade on Trade Route 29.

The Baltic Shipping Company operates from the Atlantic and Gulf Coasts to Northern Europe and the Baltic. (See Appendix II B for service details.) Baltic Shipping is presently improving its marketability with the introduction of Roll-On/Roll-Off vessels delivered in early 1976. These vessels provide the Soviet service with the most modern and efficient cargo-handling capabilities. Recent Soviet marketing efforts have emphasized the new services provided by these intermodal vessels -- i.e., advanced technology at reduced rates. At the present time there are three RO/RO vessels serving the Atlantic Coast, one of the "Magnitogorsk" class and two of the "Schulptur Konenkov" class, with an additional three vessels of the "Schulptur Konenkov" class scheduled to begin operating this summer. Their Gulf Coast service is mainly breakbulk with an occasional diversion of the RO/RO vessel "Magnitogorsk." It is not known at this time if the new RO/RO vessels are going to eventually replace the partial containerships in this service or become an addition to the existing capacity. If the three additional vessels are used as replacements for the partial containerships, then the TEU capacity in the service would decrease from its present level of 5,584 to 4,970 in 1977, but this decline is highly unlikely. The most likely possibility

is a shifting of some of the partial containerships to the Gulf as the RO/ROs are delivered, with three of four partial containers remaining on the Atlantic Coast. This would provide the company with a final Atlantic Coast capacity of 6,074 to 6,442 TEU and a Gulf Coast capacity of 1,832 to 2,200 by the end of 1977. Such a shifting of vessels would still provide for weekly sailings from the Atlantic Coast and sailings every 10-15 days from the Gulf Coast.

The Black Sea Shipping Company markets its services on the Atlantic, Gulf and Great Lakes to the Mediterranean and Black Sea. (See Appendix II C for service details.) Black Sea Shipping operates a mixed fleet of small full containerships and breakbulk vessels. Further additions to the company TEU capacity are likely because of the present construction of small containerships similar to the "Pioneer Odessy," Photo IV. Three of the small containerships are scheduled for delivery in the first half of 1977. At this time there is no indication which trade they may be placed. However, these new vessels if employed would enhance Black Sea Shipping's marketability in the future.



PIONEER ODESSY CLASS
Black Sea Shipping
Full Container

6,171 dwt; 218 TEU capacity, Built 1972-1977.

Photo IV

F. Rate Cutting and Rebating Issues

During this expansion of the Soviet competitive position various operators have charged that the Far East Shipping Company has been practicing predatory "rate cutting" in the Pacific trade; thereby enabling it to easily expand into this market. Pacific conference operators claim that the rates charged by FESCO are not compensatory for the Soviets. It has been claimed that where the Soviet fleets have been entering the liner trades, they are offering to carry cargoes at rates 10-15 percent below conference rates. A principal reason why the Soviets can afford these apparently unprofitable rates is because their financial losses are more than offset by political gains. The Soviet Union has been charged by the industry with operating vessels with little concern for commercial reality, and are therefore disrupting long established and stable liner trading. Although Soviet vessels are generally operated by crews paid wages much less than their Western counterparts, they have sought to attract cargo with freight rates that even with their lower operating costs could not be economical.

As a counter charge to "rate cutting," FESCO and the Soviet Maritime Minister, Timofei Guzhenko, has claimed that

conference members are rebating shippers with amounts greater than the alleged rate cutting by FESCO. Several investigations by the Federal Maritime Commission (FMC) during the past two years have indicated some validity in the charges of widespread rebating practices in the liner conferences.

Federal Maritime Commission Chairman Karl Bakke met with Soviet maritime officials and on July 19, 1976, announced that he and his Soviet counterparts had signed a "memorandum agreement," known as the Leningrad Agreement, concerning principles that are to govern participation of Soviet water common carriers in the U.S. oceanborne trades. The Agreement contains two key features:

1) That all ocean cargo rates contained in tariffs of Soviet carriers now engaged as independents in the liner trades of the United States will, as promptly as feasible, be adjusted to a level no less than that of the lowest rate in use for the same commodity of any other independent carriers in those trades.

2) That negotiations be conducted promptly with a view toward bringing the Soviet carriers into the Atlantic and Pacific Conference systems.

In early May 1977, Chairman Bakke urged the present Congress to undertake a "legislation solution ... promptly" as a way of solving the shipping problems with the Soviet Union. While the Soviets have responded to the terms of the Leningrad Agreement, Bakke feels that the "pace of further significant steps in that direction has been disappointingly slow." This is caused by a dissatisfaction with efforts to date, under the terms of the Leningrad Agreement, in persuading Eastern Bloc nations to voluntarily curtail their alleged "rate cutting" practices.

During the 94th Congress, the Senate Commerce Committee favorably reported a third flag bill, and the House Merchant Marine Subcommittee held hearings on similar legislation. In March 1977, the Senate Commerce Committee held hearings again on these issues, with an emphasis on rebating. Senator Daniel Inouye, (D-Hawaii), Chairman of the Merchant Marine Subcommittee, feels that a solution to rebating is an integral part of alleviating the alleged "rate cutting" practices of the state-owned merchant fleets of socialist countries, especially the Soviet fleet.

While the Federal Maritime Commission and the Senate Commerce Committee have been investigating charges of rebating, FMC was asked to approve an amendment to the membership requirements of the North Atlantic Westbound Freight Conference and the North Atlantic Continental Freight Conference. This amendment would establish a two-tier conference system by providing a special category of conference membership (Class AA) for those carriers in the trade meeting certain criteria. The new membership category is designed for operators that provide inferior service when compared to their direct competitors.

In July 1977, the two-tier rate plan was withdrawn by these two North Atlantic Conferences. After its proposal the two-tier conference system had met with strong objections from both the Federal Government (Departments of Justice and Transportation) and the maritime industry.

In summary, since 1971, the Soviet merchant marine has substantially increased both its liner service and the carriage

of liner cargoes in the U.S. trades. However, this trade penetration is largely successful because of the practice of rate cutting. In addition, these U.S. services in the past year has seen the delivery of new Soviet large, full containerships and Roll-On/Roll-Off vessels, which are the technological equivalent of their western operated counterparts. Because of these modern intermodal vessels, Soviet fleet capabilities of further expansion into the U.S. trades are enhanced. While increasing its share of carriage in the U.S. liner trades, the Soviets have been charged with alleged practices of "rate cutting." As a countercharge, the Soviets claim the traditional operators practice "rebating." At the time this report is being written, there are a variety of efforts being undertaken to improve this situation, however, a final resolution is still pending.

G. Projected Liner Trade Performance

Based on the past performance of the Soviet liner fleet in the U.S. liner trades and the fact that the U.S. - U.S.S.R. Maritime Agreement extends through 1981, Soviet merchant fleet operations in the U.S. oceanborne trades are expected to continue their expansion from its 1976 levels into the foreseeable future. This growth is based upon the apparent Soviet commitment of changing its ship mix by continuing to emphasize the construction of large intermodal vessels. It also assumes that there will be no major shifts in the areas of operation of the Soviet fleet in the U.S. oceanborne trades and that the present conference system in the U.S. liner trades will remain unchanged.

Based on these general assumptions and the historical performance of the Soviet liner fleet (1971-1976) in the U.S. oceanborne trades, a linear function of trade share by year is derived. This linear growth pattern is then projected through 1985, and reduced in its upper range into a logistic curve to most appropriately display the growth cycle of a strong individual participant within a highly competitive market. From these graphs, three phases of Soviet liner fleet expansion into the U.S. trades can be identified: 1) entrance to new market, 1971-73; 2) build up of trade, 1974-1980; and 3) established competition, 1981-1985.

These periods of Soviet expansion are directly related to the projected Soviet liner fleet growth. Between 1971-1973, the Soviet fleet operated breakbulk vessels in the U.S. liner trades, and increased its market share from 0.4 percent to 0.9 percent of the U.S. liner foreign trade.

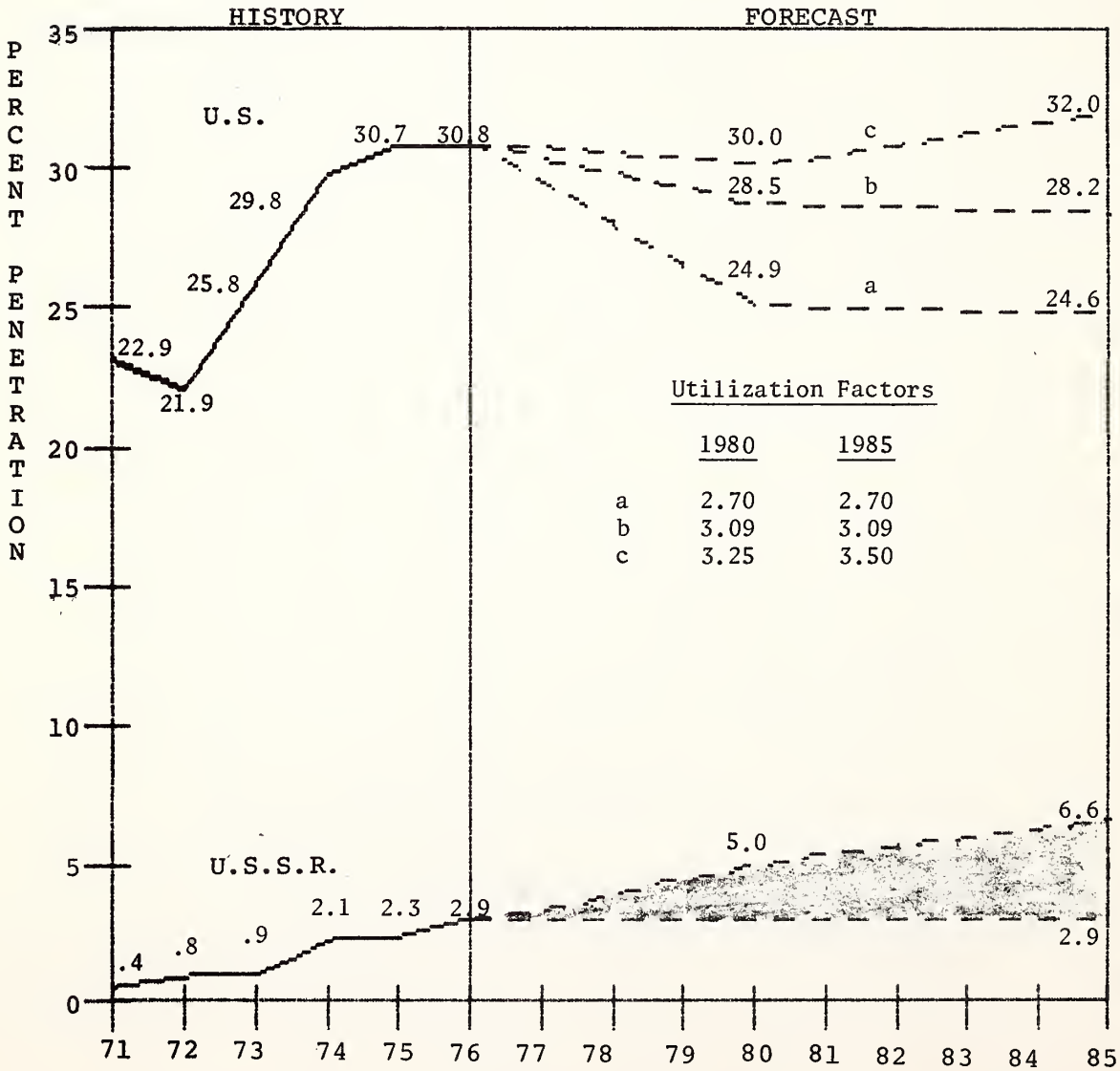
Beginning in 1974 and throughout 1976, the Soviet Union added partial containerships, then full containerships and finally Roll-On/Roll-Off vessels to their U.S. liner operations. This improved fleet capability and the practice of rate cutting aided Soviet efforts of expansion in the U.S. trades, thereby increasing their participation from 0.9 percent in 1973 to 2.9 percent in 1976. Modernization and the addition of intermodal vessels is expected to continue into 1985 with a significant growth in the Soviet participation in U.S. liner trades from a 1976 level of 2.9 percent to a projected 1980 penetration of 5.0 percent.

After 1980 and through 1985, the Soviet liner fleet's penetration is expected to slow as they move their rates more into line with existing services offered by conference carriers. From a 1981 projection of 5.4 percent, the Soviet liner fleet participation is expected to increase to 6.6 percent by 1985. If at anytime during the projection period the Soviet liner fleet joins the various liner conferences in the U.S. trades, their level of penetration would thereafter remain relatively constant. For example, if the Soviets joined the conferences in 1980, their level of penetration would remain at about 5 percent. Therefore, the shaded area in Figure II represents the projected growth of the Soviet liner fleet penetration above its 1976 level to its projected maximum 1985 level.

For comparison, with the Soviet liner fleet growth, a penetration projection of the U.S.-flag liner fleet has been developed. This was based upon the Office of Policy and Plans' "U.S.-Flag Fleet Forecast" of July 1976, and its "Long-Term Forecast of U.S. Waterborne Foreign Trade," April 1977. The U.S. liner fleet in 1980 is projected to be 310 vessels of approximately 5.5 million dwt and the 1985 fleet, to be 322 vessels of approximately 6.2 million dwt. See Appendix III for details of the "U.S.-Flag Fleet Forecast." In developing the U.S. fleet penetration forecast for 1980 and 1985, it was assumed that the U.S. markets of oceanborne foreign trade will not change significantly through 1985. The utilization factors (cargo tons/dwt) of the U.S.-flag liner vessels in 1973 and 1976

Figure II

Tonnage of Commercial Liner
Cargoes Carried in United States
Oceanborne Foreign Trade by
U.S. and U.S.S.R. Vessels



were based as conservative indicators of future U.S. fleet carriage. However, another utilization factor for 1980 and 1985 was used to reflect the expected growth of highly productive intermodal vessels in the U.S. liner fleet. Table X details the inputs and calculations used to determine the projected levels of U.S. and U.S.S.R. liner carriage of the U.S. liner trade for 1980 and 1985. Figure II grahpically illustrates the data points highlighted in Table X.

H. Projected Total Trade Performance

This projection assumes that the Soviet fleet will continue operating in the U.S. tanker and non-liner trades, through 1981 and into the foreseeable future. Because of the irregularity of the Soviet performance in the U.S. tanker and non-liner trades, a micro-analysis approach was undertaken to forecast Soviet carriage by service type. The various micro-models are based upon the past performance of the Soviet fleet in the non-bilateral bulk trades, one-third carriage of the minimum level of bilateral grain shipments and a one-third carriage of the average yearly level of other bilateral dry and liquid bulk cargoes. Table XI shows the Soviet carriage levels for 1972-1976 and projected carriage for 1980 and 1985 for the various micro-models.

The total projected Soviet carriage for 1980 is 8.1 million tons of cargoes representing 1 percent of the projected U.S. oceanborne trade and in 1985, 10.6 million tons or 1.1 percent. This growth is less dramatic than the projected liner growth because of the large volume of dry and liquid bulk commodities moving in the U.S. foreign trade.

Table X
Projected U.S. and U.S.S.R. Carriage of
U.S. Liner Oceanborne Foreign Trades
1980 and 1985

		Liner U.S. Fleet				Liner U.S.S.R. Fleet		
	U.S. Oceanborne Foreign Trade (long tons) Liner Cargoes 1/	Utilization Factor (cargo tons/dwt)	dwt (millions)	Cargo Carriage (thousand l/t)	Percent Participation 2/	dwt (millions)	Cargo Carriage (thousands l/t)	Percent Participation 3/
1980	59,533,000	2.70(1973)	5.5	14,850	24.9	6.6	2,977	5.0
		3.09(1976)		16,995	28.5			
		3.25 4/		17,875	30.0			
1985	67,914,000	2.70(1973)	6.2	16,740	24.6	7.2	4,482	6.6
		3.09(1976)		19,158	28.2			
		3.50 4/		21,700	32.0			

1/ Liner cargoes for 1980 and 1985 are 7 percent of the total U.S. oceanborne foreign trade projection. This is based upon the historical trend of U.S. liner cargoes becoming a smaller percentage of the total U.S. oceanborne foreign trades.

2/ The U.S. percent participation is calculated by multiplying the utilization factor and the fleet DWT to determine the U.S. cargo carriage.

3/ The U.S.S.R. percent participation is determined from the liner trend analysis.

4/ Future utilization factors which reflect the growth in the number of intermodal vessels.

Table XI
Projected U.S.S.R. Carriage
of Total U.S. Oceanborne Foreign Trade

Year	Grain U.S.S.R.(1)	Grain Total	Other Dry & Liquid Bulk U.S.S.R.(2)	Other Dry & Liquid Bulk Total	Non-Bilateral Trade Imports(3)	Non-Bilateral Trade Exports(4)	Liner Trade(5)	Total (1+2+3+4+5)
1972/73	3,236,100	19,581,900	53,600	1,722,600	---	---	---	---
1974	713,800	3,091,900	50,400	1,300,800	500,000	1,000,000	1,073,000	3,343,000
1975	1,700,200	7,953,900	278,700	1,680,100	746,300	822,000	1,000,000	4,547,000
1976	2,411,200	11,704,200	322,400	828,400	137,600	1,396,000	1,434,000	5,701,000
1980	2,033,000 1/	6,100,000	450,000 2/	1,355,000	465,000 3/	2,176,000 4/	2,977,000	8,101,000
1985	2,033,000 1/	6,100,000	450,000 2/	1,355,000	465,000 3/	3,141,000 4/	4,482,000	10,581,000

Assumptions:

1/ One-third of the minimum guaranteed annual Soviet grain purchase.
2/ One-third of the 1972-1976 average yearly movement of other bulk bilateral cargoes.
3/ An average of the 1974-1976 Soviet carriage of non-bilateral trade imports.
4/ Regression analysis of 1974-1976 export data corrected for 12 percent U.S. production. index slump and worldwide recession in 1975.

For comparison with the Soviet fleet expansion in the U.S. trades, a penetration projection of the U.S.-flag fleet has been developed. This projection is based upon the Office of Policy and Plans' "U.S.-Flag Fleet Forecast" of July 1976 and its "Long-Term Forecast of U.S. Waterborne Foreign Trade," April 1977. The U.S. fleet in 1980 is projected to be 556 vessels of approximately 22.3 million dwt and the 1985 fleet, to be 576 vessels of approximately 24.8 million dwt. See Appendix III for details of the "U.S.-Flag Fleet Forecast." In developing the U.S. fleet penetration forecast for 1980 and 1985, it was assumed that the U.S. markets of oceanborne foreign trade will not change significantly through 1985. The utilization factors (cargo tons/dwt) of the U.S.-flag vessels in 1973 and 1976 were based as conservative indicators of future U.S. fleet carriage. However, another utilization factor for 1980 and 1985 was used to reflect the expected growth of highly productive intermodal vessels in the U.S. fleet. Table XII details the inputs and calculations used to determine the projected levels of U.S. and U.S.S.R. carriage of the total U.S. oceanborne foreign trade for 1980 and 1985. Figure III graphically illustrates the data points highlighted in Table XII.

Table XII
Projected U.S. and U.S.S.R. Carriage of
U.S. Oceanborne Foreign Trades
1980 and 1985

	Total U.S. Fleet					Total U.S.S.R. Fleet		
	U.S. Oceanborne Foreign Trade (long tons) Total Cargoes	Utilization Factor (cargo tons/dwt)	dwt (millions)	Cargo Carriage (thousands 1/t)	Percent Participation 1/	dwt (millions)	Cargo Carriage (thousands 1/t)	Percent Participation 2/
1980	850,468,000	2.11(1976) 2.91(1973) 2.99 3/	22.3	47,053 64,893 66,763	5.5 7.6 7.9	18.4	8,101	1.0
1985	970,199,000	2.11(1976) 2.91(1973) 3.06 3/	24.8	52,328 72,168 75,826	5.4 7.4 7.8	23.0	10,581	1.1

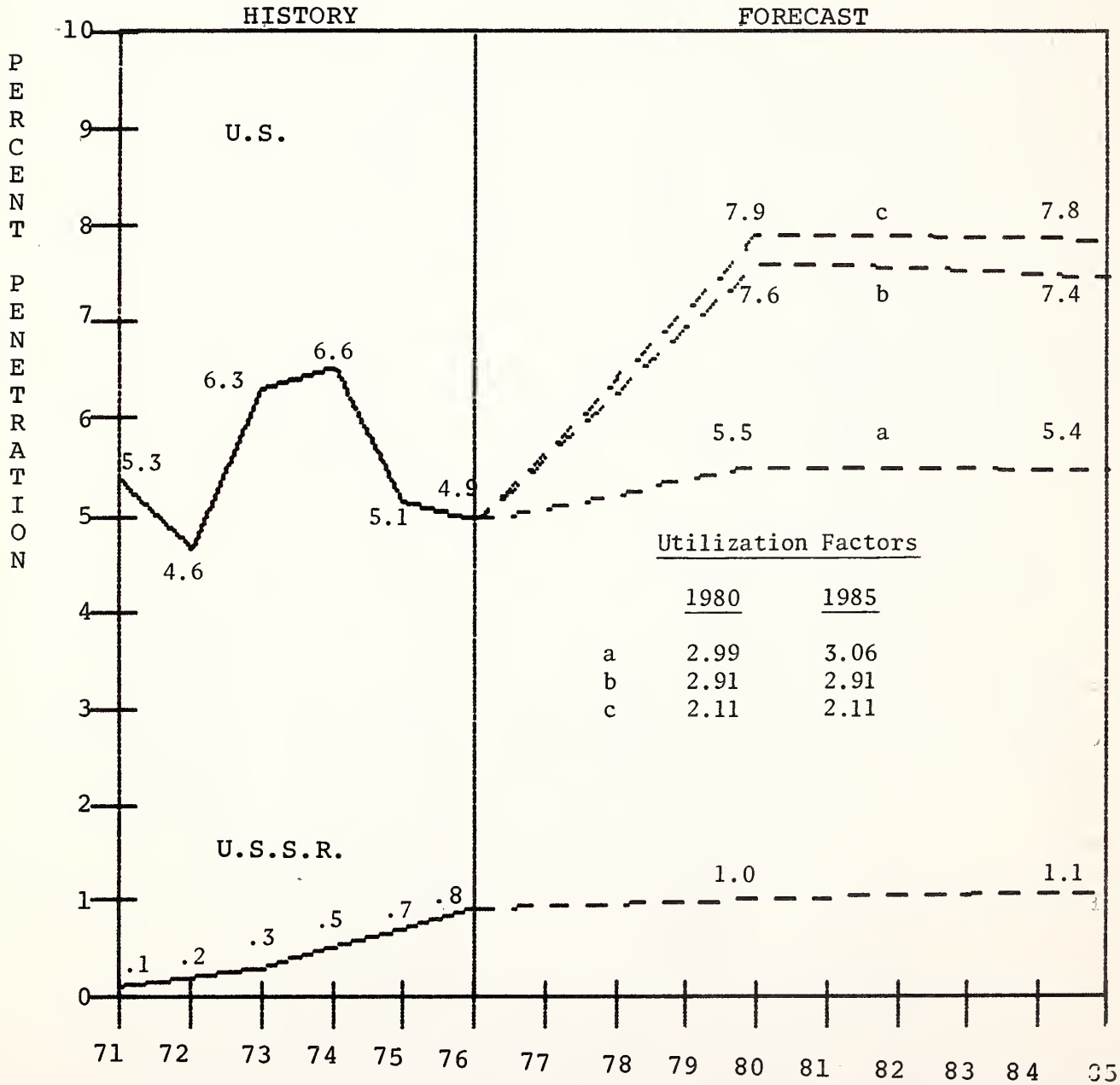
1/ The U.S. percent participation is calculated by multiplying the utilization factor and the fleet dwt to determine the U.S. cargo carriage.

2/ The U.S.S.R. percent participation is determined from the micro-analysis forecast and the liner trend analysis.

3/ Future utilization factors which reflect the growth in the number of intermodal vessels.

Figure III

Tonnage of Commercial Cargoes
Carried in United States Oceanborne
Foreign Trade by U.S. and U.S.S.R. Vessels



V. SOVIET FLEET OPERATIONS WORLDWIDE AND UTILIZATION OF CAPACITY

Although during the period 1969-1976 the total tonnage of the Soviet merchant fleet increased from 11.2 million dwt to 15.4 million dwt, it actually declined on an overall basis as a percentage of world tonnage, from 3.9 percent to 2.8 percent. However, this small overall decrease in the Soviet share of the world merchant fleet does not reflect its growing importance. Due to the substantial Soviet building program between 1969 and 1975, the Soviet share of the world general cargo fleet has significantly increased from 8.2 percent to 10.5 percent. However, Soviet foreign trade is by volume at least 75-80 percent dry and liquid bulk commodities while the Soviet dry bulk and tanker fleet, inadequate to handle this bulk trade, is only 43 percent of their total merchant fleet. Thus, the Soviet development of their general cargo fleet -- since general cargoes account for only a small fraction of their total trade volume -- has become of major interest and concern to the western shipping companies.

To better analyze the actual impact of this Soviet fleet development, it is necessary to review both Soviet foreign trade and the carrying capacity of the Soviet fleet. Any examination of Soviet trade data must be prefaced with a basic statistical limitation of that data. The figures for Soviet trade with Europe do not differentiate mode of carriage (e.g., rail vs. sea). Eliminating this European trade from the analysis distorts

the picture by removing the relatively short-distance trades in the North Sea and Mediterranean Europe and considers only the deep-sea trade.

In 1974 Soviet oceanborne foreign trade was 2.1 percent of the world oceanborne trades, a decrease from 2.5 percent in 1969. Table XIII shows the volume and composition of Soviet foreign trade in 1974.

Table XIII
Soviet Foreign Trade
1974

(million tons)

	Exports	Imports	Total
Total, all modes	264	50	314
Total, by sea	118	22	140
Tanker Cargo	72	10	82
Dry Cargo	46	12	58
Estimated Components of Dry Cargo			
Bulk	--	--	40-50
Liner	--	--	8-18

Source: United Nations Monthly Statistics and Vneshnaya Torgovla, 1974.

In the 1974 Soviet study entitled "World Bulk Carrier Market and Shipping in Socialist Countries"[1/], by I. M. Moghilevkin, the following major seaborne dry bulk trades were estimated for 1973-74:

7-10 million tons of Black Sea coal
3-4 million tons of Baltic coal
2.5-3 million tons of Russian Far East coal
8-10 million tons of Baltic iron ore exports
2.5 million tons of Arctic iron ore exports
4 million tons of apatite export from Murmansk
11.5 million tons average yearly grain imports, and smaller amounts of Cuban sugar and bauxite/alumina imports.

The total of these dry bulk foreign seaborne trades is in the range of 40-50 million tons a year.

An analysis of the Soviet deep-sea trade (that which requires oceangoing vessels of the fleet) has been extracted from the Lambert Brothers study[2/] using data which appears in the Norwegian Shipping News. In that analysis, the total Soviet deep-sea (non-European) exports to foreign countries totaled 28.2 million tons in 1974 or about 24 percent of all Soviet seaborne exports. This deep-sea export figure can be broken down as follows:

1/ I.M. Moghilevkin, "World Bulk Carrier Market and Shipping in Socialist Countries", Soviet Ekonomitsheskov Vzaimopomoschi - B.K.F.C., Information Bulletin, No. 3,117, March 1974.

2/ Russian Shipping Background Data and Analysis, Lambert Brothers Shipping Limited, p.11.

Soviet Deep-Sea Exports[3]
(million tons)

Oil and Oil Products		12.5
Coal, Coke, Iron & Manganese Ore	4.6	
Other Bulk & Neo-Bulk[1]	9.0	
Total Dry Bulk and Neo-Bulk		13.6
Other[2]		2.1
		28.2

1/ Timber, Iron and Steel, Grain and Flour, Chemicals and Fertilizers, Sulphur, Chrome Ore
2/ Cement, Non-Ferrous Metals, Fish, Paper, Cotton, and miscellaneous other Cargoes.

The Lambert study concludes that the "other" catagory of 2.1 million tons is the potential liner cargo and further estimates that 5 to 7 million tons of the neobulk cargoes may move on liner vessels.

Soviet deep-sea imports from non-European countries for 1974 totaled 11.1 million tons. Of these imports, bulk sugar, grain, bauxite and alumina amounted to about 8 million tons, leaving approximately 3.1 million tons of the import cargo most suitable for liner tonnage.

An estimate of annual productive carrying capacity of the Soviet fleet has also been developed by Lambert Brothers. According to their study, the total potential annual carrying capacity of the Soviet fleet is estimated at just under 200

3/ Norwegian Shipping News, No.4, 1976, p.11.

million tons. This capacity easily exceeds the requirements of the total Soviet seaborne foreign trade of 140 million tons in 1974 and the Soviet coastal trade. Also, according to Soviet sources[4/], about 40 percent, or 56 million tons, of the Soviet foreign trade is carried in foreign-flag vessels. Recent data on the carriage of cross trade, foreign trade or coastal trade by Soviet vessels is not readily available.

Based on Lambert Rrothers information[5/], Soviet vessels in 1973 carried a total seaborne trade of 186.7 million tons, of which 149.5 million tons was foreign trade. Assuming the difference is coastal trade, and that the same proportion of foreign-domestic trade existed in 1974, Soviet vessels would have carried an estimated 40 million tons of cargo in the domestic trades. Therefore, based on these carriage assumptions, the Soviet fleet capacity available for cross trading is estimated at 75 million tons. This excess Soviet fleet capacity is estimated by the Maritime Administration to be between 5 and 6 million dwt, depending on the geographic area of vessel employment.

Based on this fleet carrying capacity and the dry cargo requirements for bulk, deep-sea and coastal shipping,

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4/ According to Timofei Guzhenko, Minister of Soviet Merchant Marine, Norwegian Shipping News, Feb. 27, 1970, p. 14.

5/ Lambert Brothers Shipping Limited, p. 31.

the Soviet dry cargo fleet is estimated to be employed as follows: 1) 1.3 million deadweight tons of dry bulk shipping for bulk trades, 2) 3.5 million deadweight tons of general cargo vessels for coastal trades, 3) 1 to 2.4 million deadweight tons of general cargo vessels for Soviet deep-sea foreign trade, and 4) 2.8 to 4.2 million deadweight tons of general cargo vessels for cross-trading or as an alternate to chartered bulk tonnage in the Soviet foreign and coastal trades.[6] It should be noted that these vessel employment projections are for dry cargo vessels only and that the availability of general cargo tonnage for the foreign deep-sea and cross trades would be reduced if the vessels were employed in carriage of bulk commodities such as ore, coal and grain in the Soviet foreign and coastal trades. Past experience has shown that the Soviet dry bulk fleet of 1.3 million dwt is in fact supplemented in the carriage of Soviet bulk export and import trades by the employment of Soviet general cargo tonnage and chartered foreign-flag bulk carrier tonnage. Employment data on the Soviet tanker fleet is even more limited than that available on dry cargo vessels, therefore an analysis of tanker employment was not undertaken.

This fleet capability enables the Soviet merchant marine to fulfill several essential roles of maritime and foreign policy:

6/ Lambert Brothers Shipping Limited, p.12.

- to provide shipping capacity to reduce dependence on Western shipping

- to earn foreign currency to assist in the balance of payments

- to provide the shipping capacity necessary to transport military cargoes

- to assist in the expansion of Soviet policy throughout the world.

To further aid in accomplishing these roles and the competitive position of the Soviet Union maritime industry, the Tenth Five Year Plan announced the following goals in addition to the previously noted goals for modernizing and increasing the merchant fleet:

> "To provide for the further development of sea transport. To fully satisfy the growing needs of the national economy for foreign trade and coastal carriage. To improve goods deliveries to the Far North and Far East. To increase the scope and effectiveness of export of transport services. To develop the capacity of sea ports mainly by building specialized handling complexes with moorages totalling 5.3 km, primarily in the ports of Vostochny, Nagaryeva, Novorossiisk, Tuapse, Ilyichovsk and Arkhangelsk. To continue work on building the new Grigoryev Liman Port on the Black Sea. To bring the standard of comprehensive mechanization in cargo loading and unloading at sea port to 92 percent."7/

Because of its excess capacity and the politically oriented goals of the fleet, the Soviet merchant marine operates outside the normal commercial practices of a market economy. In addition, the Soviet merchant marine operating in the "cross trades" provides the Soviet government with a

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7/ "U.S.S.R. Tenth Five Year Plan," p. 29.

source of badly needed foreign currency. This may be viewed by the Soviets as particularly important due to their critical balance-of-trade position. According to the Soviet Ministry of Foreign Trade, in 1975, Soviet imports were $37.1 billion while their exports were only $33.4 billion, leaving a sizable trade deficit of $3.7 billion. The only means for the Soviet Union to offset this imbalance is to sell current holdings of its foreign currency or to sell part of its substantial holding of gold bullion.

Soviet operations during recent years in western trading markets have allegedly involved undercutting the Western ship operators' rates by 10-20 percent. This activity has taken place outside the conference system, and if continued, could have long-term effects on economical western oceanborne service. Many people feel that if the Soviet activities are not economically motivated, they must be political in nature with an ultimate goal of embarrassing western shipping by weakening the western system.

In summary, the Soviet merchant fleet capabilities and the political/economic policies of the Soviet government are obvious when looking at the employment patterns of the Soviet fleet. In recent years, fleet employment has shifted to longer routes -- the non-Soviet/Communist Bloc trades. Table XIV details the tonnage and ton-nautical mile performance of the Soviet merchant fleet from 1960 to 1975, while showing a six-fold increase in ton-nautical miles with less than a threefold

increase in cargo tonnage. This performance results from the average cargo distance increasing from approximately 935 nautical miles to over 2,100 nautical miles. These facts definitely show that the Soviet merchant fleet has shifted its areas of operation from domestic and short sea foreign trades to the longer foreign deep-sea and cross trades.

Table XIV
Soviet Merchant Fleet Size
and Cargo Performance

	1960	1965	1970	1975
Fleet Tonnage Capacity (million dwt) Total	3.9	8.0	11.9	15.4
Fleet Performance (billion ton-nautical miles) Total	71.0	209.9	354.3	421.6
(million metric tons carried) Total	75.9	119.3	161.9	199.8
Total in Foreign Trade1/	21.3	57.5	90.3	122.0
Total in Domestic Coastal Trade	54.6	61.8	71.6	77.8

1/ Soviet import and export trades and cross trade cargoes.

Source: The National Economy of the U.S.S.R., published annually; Vodnyy Transport; and Morskoy Flot.

Appendix I
Major Commodities Carried by the Soviet Merchant Marine in the U.S. Oceanborne Foreign Trade

1976

Commodity	Ranking by Tonnage: Thousands of Long Tons	Ranking by Tonnage: Percent	Ranking by Tonnage: Millions of $ Value	Ranking by Tonnage: Percent	Ranking by Dollar Value: Thousands of Long Tons	Ranking by Dollar Value: Percent	Ranking by Dollar Value: Millions of $ Value	Ranking by Dollar Value: Percent	Commodity
Corn, Wheat	2,309	38.2	306	11.4	2,309	38.2	306	11.4	Corn, Wheat
Feeding Stuff for Animals	878	14.5	140	5.2	42	.7	214	8.0	Machinery/Appliances N.E.C.
Petroleum, Crude & Products	615	10.2	58	2.2	878	14.5	140	5.2	Feeding Stuff for Animals
Fertilizers, Manufactured	354	5.9	38	1.4	11	.2	95	3.5	Telecommunications Apparatus
Ores, Concentrates Nonferrous	114	1.9	23	.9	17	.3	94	3.5	Metalworking Machinery
Pulp & Waste Paper	106	1.8	26	1.0	29	.5	91	3.4	Road Motor Vehicles & Parts
Oil Seeds, Oil Nuts	72	1.2	20	.7	22	.4	89	3.3	Machinery for Specific Ind.
Wood, Shaped & Simply Worked	72	1.2	16	.6	21	.3	61	2.3	Agricultural Machinery
Paper & Paperboard	65	1.1	23	.9	19	.3	59	2.2	Electric Refrigerators
Hides/Skins, Undressed	53	.9	47	1.7	615	10.2	58	2.2	Petroleum, Crude & Products
Wood Veneers, Plywood Boards	53	.9	17	.6	6	.1	51	1.9	Sound Recorders & Parts
Nails, Screws, Nuts, Bolts	52	.9	33	1.2	9	.1	49	1.8	Textile/Leather Machinery
Crude Minerals N.E.S.	51	.8	7	.3	53	.9	47	1.7	Hides/Skins, Undressed
Iron or Steel Plates, Sheets	51	.8	13	.5	33	.5	42	1.6	Plastic Materials, Syn. Resin
Glass & Glassware	48	.8	23	.9	11	.2	41	1.5	Baby Carriages, Toys, Games
Nonferrous Metal Scrap	46	.8	33	1.2	8	.1	40	1.5	Electrical Machinery N.E.S.
Machinery/Appliance N.E.C.	42	.7	214	8.0	354	5.9	38	1.4	Fertilizers, Manufactured
Crude Rubber	40	.7	28	1.0	4	.1	38	1.4	Office Machines & Parts
Plastic Materials, Synethic Resin	33	.5	42	1.6	32	.5	36	1.3	Organic Chemicals
Organic Chemicals	32	10.8	36	1.3	10	21.4	35	38.8	Power Generating Machinery
All Other Commodities	615	15.9	1,510	56.9	1,218	25.9	1,029	39.7	All Other Commodities
	5,701		2,653		5,701		2,653		

Major Commodities Carried by the Soviet Merchant Marine in the U.S. Oceanborne Foreign Trade

1975

Commodity	Ranking by Tonnage: Thousands of Long Tons	Ranking by Tonnage: Percent	Ranking by Tonnage: Millions of $ Value	Ranking by Tonnage: Percent	Ranking by Dollar Value: Thousands of Long Tons	Ranking by Dollar Value: Percent	Ranking by Dollar Value: Millions of $ Value	Ranking by Dollar Value: Percent	Commodity
Corn, Wheat	1,561	34.3	260	14.0	1,561	34.3	260	14.0	Corn, Wheat
Petroleum, Crude & Products	814	17.9	73	3.9	25	.6	128	6.9	Machinery/Appliances N.E.C
Feeding Stuff for Animals	680	14.9	101	5.5	680	14.9	101	5.5	Feeding Stuff for Animals
Fertilizers, Manufactured	138	3.0	25	1.4	19	.4	74	4.0	Machinery for Specific Industry
Crude Rubber	124	2.7	64	3.4	814	17.9	73	3.9	Petroleum Crude & Products
Ores, Concentrates Nonferrous	122	2.7	17	.9	12	.3	70	3.8	Metalworking Machinery
Sugar, Syrups, Molasses, Hone	72	1.6	28	1.5	124	2.7	64	3.4	Crude Rubber
Pulp & Waste Paper	50	1.1	13	.7	6	.1	54	2.9	Telecommunications Apparatus
Crude Minerals, N.E.S.	49	1.1	5	.2	20	.4	53	2.9	Agricultural Machinery
Hides/Skins, Undressed	45	1.0	24	1.3	15	.3	51	2.7	Road Motor Vehicles & Parts
Iron & Steel Tubes, Fittings	42	.9	24	1.3	5	.1	40	2.1	Sound Recorders & Parts
Oil Seeds, Oil Nuts	34	.7	8	.4	9	.2	37	2.0	Electrical Machinery, N.E.S.
Paper and Paperboard	33	.7	11	.6	9	.2	30	1.6	Baby Carriages, Toys, Games
Aluminum/Aluminum Alloys	28	.6	23	1.2	72	1.6	28	1.5	Sugar, Syrups, Molasses, Hone
Nonferrous Metal Scrap	27	.6	18	.9	3	.1	27	1.5	Office Machines & Parts
Iron & Steel Plates, Sheets	25	.6	12	.7	9	.2	26	1.4	Electric Refigerators
Machinery/Appliance N.E.C.	25	.6	128	6.9	138	3.0	25	1.4	Fertilizers, Manufactured
Iron & Steel Bars	23	.5	7	.4	42	.9	24	1.3	Iron & Steel Tubes, Fittings
Wood, Shaped & Simply Worked	22	.5	4	.2	45	1.0	24	1.3	Hides/Skins, Undressed
Glass and Glassware	21	.5	13	.7	28	.6	23	1.2	Aluminum/Aluminum Alloys
All Other Commodities	612	13.5	997	53.7	911	20.0	643	34.7	All Other Commodities
Total All Commodities	4,547		1,855		4,547		1,855		Total All Commodities

Source: Maritime Administration

Major Commodities Carried by the Soviet Merchant Marine in the U.S. Oceanborne Foreign Trade

1974

Commodity	Ranking by Tonnage: Thousands of Long Tons	Ranking by Tonnage: Percent	Ranking by Tonnage: Millions of $ Value	Ranking by Tonnage: Percent	Ranking by Dollar Value: Thousands of Long Tons	Ranking by Dollar Value: Percent	Ranking by Dollar Value: Millions of $ Value	Ranking by Dollar Value: Percent	Commodity
Corn, Wheat	890	26.6	94	6.7	27	.8	99	7.1	Machinery/Appliance N.E.C.
Feeding Stuff for Animals	593	17.7	90	6.4	890	26.6	94	6.7	Corn, Wheat
Petroleum, Crude & Product	312	9.3	33	2.4	593	17.7	90	6.4	Feeding Stuff for Animals
Oil Seeds, Oil Nuts	115	3.4	34	2.4	25	.8	52	3.7	Copper/Copper Alloys
Iron & Steel Plates, Sheets	74	2.2	26	1.9	72	2.1	49	3.5	Crude Rubber
Iron & Steel Tubes, Fittings	73	2.2	29	2.0	6	.2	49	3.5	Telecommunications Apparatus
Sugar, Syrups, Molasses, Hone	73	2.2	25	1.8	13	.4	44	3.1	Machinery for Specific Industry
Crude Rubber	72	2.1	49	3.5	5	.1	39	2.8	Sound Recorders & Parts
Coal	71	2.1	4	.3	12	.4	37	2.6	Metalworking Machinery & Parts
Ores, Concentrates Nonferrous	69	2.1	9	.7	39	1.2	34	2.5	Hides/Skins, Undressed
Cereals, Unmilled	66	2.0	8	.6	115	3.4	34	2.5	Oil Seeds, Oil Nuts
Iron & Steel Bars	56	1.7	23	1.7	312	9.3	33	2.4	Petroleum, Crude & Products
Paper & Paperboards	55	1.7	16	1.2	73	2.2	29	2.1	Iron & Steel Tubes, Fittings
Crude Minerals, N.E.S.	50	1.5	4	.3	3	.1	27	1.9	Office Machines & Parts
Hides/Skins, Undressed	39	1.2	34	2.5	74	2.2	26	1.9	Iron & Steel Plates, Sheets
Pulp & Waste Paper	32	1.0	10	.7	73	2.2	25	1.8	Sugar, Syrups, Molasses, Hone
Wood, In Rough	30	.9	7	.5	56	1.7	23	1.7	Iron & Steel Bars
Fertilizers, Manufactured	28	.8	4	.3	23	.7	21	1.5	Aluminum/Aluminum Alloys
Building Materials, Lime & Cement	28	.8	6	.4	7	.2	21	1.5	Road Motor Vehicles & Parts
Machinery/Appliance N.E.C.	27	.8	99	7.1	8	.2	19	1.3	Electric Refrigerators
All Other Commodities	590	17.6	795	56.8	917	27.4	554	39.6	All Other Commodities
Total All Commodities	3,343		1,399		3,343		1,399		

Source: Maritime Administration

Major Commodities Carried by the Soviet Merchant Marine in the U.S. Oceanborne Foreign Trade

1971

Commodity	Ranking by Tonnage: Thousands of Long Tons	Ranking by Tonnage: Percent	Ranking by Tonnage: Millions of $ Value	Ranking by Tonnage: Percent	Ranking by Dollar Value: Thousands of Long Tons	Ranking by Dollar Value: Percent	Ranking by Dollar Value: Millions of $ Value	Ranking by Dollar Value: Percent	Commodity
Iron and Steel Tubes, Fittings	50	19.1	8	15.4	50	19.1	8	15.4	Iron & Steel Tubes, Fittings
Iron & Steel Bars	41	15.6	6	11.5	41	15.6	6	11.5	Iron & Steel Bars
Petroleum, Crude & Products	34	13.0	*	1.0	14	5.3	3	5.8	Nails, Screws, Nuts, & Bolts
Feeding Stuff for Animals	22	8.4	1	1.9	17	6.5	3	5.8	Iron & Steel Plates, Sheets
Iron & Steel Plates, Sheets	17	6.5	3	5.8	16	6.1	3	5.8	Iron & Steel Wire
Iron & Steel Wire	16	6.1	3	5.8	1	.4	2	3.8	Nonferrous Base Metal
Nails, Screws, Nuts & Bolts	14	5.3	3	5.8	6	2.3	2	3.8	Wood, Veneers, Plywood Boards
Pulp & Waste Paper	9	3.4	2	3.8	9	3.4	2	3.8	Pulp and Waste Paper
Stone, Sand & Gravel	9	3.4	**	.1	7	2.7	2	3.8	Wire Products, Non-Electric Fencing
Wire Products, Non-Electric Fencing	7	2.7	2	3.8	***	.2	1	1.9	Sound Recorders & Parts
Wood Veneers, Plywood Boards	6	2.3	2	3.8	***	.2	1	1.9	Clothing
Wood, Shaped or Simply Worked	3	1.1	**	.6	2	.8	1	1.9	Machinery/Appliance N.E.C.
Oil Seeds, Oil Nuts	2	.8	**	.5	***	.2	1	1.9	Telecommunications Apparatus
Equipment for Distributing Elec.	2	.8	**	.9	22	8.4	1	1.9	Feeding Stuff for Animals
Rails & Railway Track Material	2	.8	**	.6	2	.8	*	1.8	Manufactures of Metal, N.E.C.
Ships, Boats, Floating Structures	2	.8	**	.3	***	.4	*	1.7	Vehicles Other than Road Motor
Manufacturers of Metal, N.E.C.	2	.8	*	1.9	****	.1	*	1.4	Road Motor Vehicles & Ports
Machinery/Appliance N.E.C.	2	.8	1	1.9	1	.4	*	1.1	Organic Chemicals
Organic Chemicals	1	.4	*	1.1	34	13.0	*	1.0	Petroleum, Crude & Products
Crude Rubber	1	.4	**	.7	****	.1	*	1.0	Footwear
All Other Commodities	20	7.6	17	32.7	37	14.1	12	23.1	All Other Commodities
Total All Commodities	262		52		262		52		Total All Commodities

* Commodity dollar value greater than $500 thousand and less than $1 million.
** Commodity dollar value less than $500 thousand.
*** Commodity tonnage greater than 500 and less than 1,000 long tons.
**** Commodity tonnage less than 500 long tons.

Source: Maritime Administration

Appendix II A

Far East Shipping Company
Transpacific Service
May - July 1976

California Express Land Bridge Service - Container Service - Service between Long Beach and Oakland to Tokyo and Kobe-connects with train from New York, Baltimore, Philadelphia, Boston, Norfolk, Charleston, Savannah, Jacksonville, Wilmington and Miami, feeder to Hong Kong - Seven scheduled sailings from May 18 - July 18.

Vessel	Type	Year Built	DWT	No. of TEU
Knudozhnik Saryan	Container	1975	13,300	798
Pestovo	Partial Container	1973	12,050	368
Pravdinsk	Partial Container	1974	11,817	364
Privole	Partial Container	1974	12,050	368
Putivl	Partial Container	1974	11,817	364

Pacific Northwest Express-Container Service - service between Vancouver B.C., Seattle and Portland to Tokyo and Kobe, feeder to Hong Kong - Eight scheduled sailings from May 13 to July 15.

Vessel	Type	Year Built	DWT	No. of TEU
Knudozhnik Saryan, Pestovo, Pravdinsk, Privole, Pavlodar	Partial Container	1975	12,050	368
Pskov	Partial Container	1973	12,050	368

USA/Southwest Asia - Service between Long Beach and Alameda to Philippines, Thailand and Singapore - Four scheduled sailings from May 4 to Aug. 4.

Vessel	Type	Year Built	DWT
Anton Chekhov	Breakbulk	1968	14,163
Nikolay Karamzin	Breakbulk	1969	14,170
Sergey Yesenin	Breakbulk	1968	14,170
Vladimir Mayakovsky	Breakbulk	1968	14,170

Pacific Northwest Express - Service between Tacoma, Longview and Vancouver to Philippines, Thailand and Singapore - Six scheduled sailings from May 12 to July 29.

Vessel	Type	Year Built	DWT
Sergey Yesenin			
Vladimir Mayakovsky			
Aleksandr Vermisher	Breakbulk	1970	14,861
Alisher Navoi	Breakbulk	1969	13,778
Makhtum Kuli	Breakbulk	1969	14,113

Pacific Northwest/Japan Breakbulk Service - Service between Vancouver, Seattle and New Westminster to Tokyo, Yakohoma and Kobe - Three scheduled sailings from Apr. 22 to June 18.

Vessel	Type	Year Built	DWT	No. of TEU
Pavlodar	Partial Container	1975	12,050	368
Navikov Priboy	Breakbulk	1968	14,170	
Suleyman Stalsky	Breakbulk	1968	14,113	

U.S. Atlantic and Gulf Line - Service between New York, Philadelphia, Baltimore, Houston and New Orleans to Singapore, Manila, Bangkok and Malaysia - Six scheduled sailings Apr. 8 to Sept. 5.

Vessel	Type	Year Built	DWT
Aleksandr Serafimovich	Breakbulk	1968	14,163
Gamzat Tsadasa	Breakbulk	1971	14,906
Ivan Kotlyarevsky	Breakbulk	1970	14,906
Vladimir Korolenko	Breakbulk	1969	14,170

Appendix II B

Baltic Shipping Company
Baltatlantic Line
Transatlantic/Europe Service
May - July 1976

East Coast to Northern Europe and Baltic - Weekly container service from New York, Philadelphia, Norfolk, Baltimore and Savannah - Connects with weekly minibridge service from Los Angeles, Oakland, Portland and Seattle via Savannah.

Vessel	Type	Year Built	DWT	No. of TEU
Dekabrist	Partial Container	1976	11,817	364
Palakh	Partial Container	1973	12,050	368
Pavlograd	Partial Container	1974	12,050	368
Polessk	Partial Container	1974	12,050	368
Primorsk	Partial Container	1975	12,050	368
Valter Ulbrikht	Partial Container	1974	11,817	364
Varnemyunda	Partial Container	1972	12,050	368
Breakbulk Service:				
Petrodvorets	Partial Container	1975	12,050	368
Magnitogorsk	Roll On/Roll Off	1976	22,690	1,368
Schulptur Konenkov	RO-RO/Container	1975	18,460	774
Schulptur Vuchetich	RO-RO/Container	1976	18,460	774

Gulf Coast/Europe Service - Gulf Coast to North Europe and Baltic - Twice monthly breakbulk service from New Orleans and Houston.

Vessel	Type	Year Built	DWT
Novodruzhesk	Breakbulk	1968	12,500
Novgorod	Breakbulk	1967	12,500
Novokuznetsk	Breakbulk	1967	12,324
Novovolynsk	Breakbulk	1970	12,500

Appendix II C

Black Sea Shipping Company
June and July, 1976

Blasco Med-Atlantic Line

Atlantic Coast/Mediterranean and Black Sea - Container service from New York, Philadelphia, Norfolk and Baltimore to Genoa, Leghorn, Naples, Piraeus, Benghazi, Constanza and Odessa.

Vessel	Type	Year Built	DWT	No. of TEU
Ivan Shepetkov	Partial Container	1975	13,500	342
Nikolay Ananyeu	Partial Container	1974	13,500	342
Yakou Ananyeu	Not available			

Gulf and Atlantic Coast/Mediterranean and Black Sea - Container and breakbulk service between New Orleans, Houston, Mobile, Brownsville and Savannah to Casablanca, Genoa, Leghorn, Piraeus, Constanza and Odessa.

Vessel	Type	Year Built	DWT	No. of TEU
Geroi Panfilovcy	Breakbulk	1973	13,287	--
Ivan Moskalenko	Partial Container	1975	13,500	342
Nikolay Maksimou	Partial Container	1975	12,500	258

Great Lakes/Mediterranean and Black Sea - Service between Cleveland, Chicago, Detroit and Milwaukee to Valencia, Barcelona, Lisbon, Genoa, Naples, Leghorn, Piraeus, and Odessa.

Vessel	Type	Year Built	DWT	No. of TEU
50 Letie Komsomola	Breakbulk	1968	8,129	--
Donetsky Komsomolets	Breakbulk	1969	8,290	--
Pioneer Odessy	Container	1972	6,171	218

Appendix III

U.S.-FLAG FLEET FORECAST[1/]

The fleet forecast presented on the following pages has been developed for use by the Office of Maritime Manpower in assessing the future deck and engine officer requirements of the U.S. maritime industry. All of the assumptions employed in the development of the forecast are specified and a tabular presentation of the forecast under three alternative fleet growth scenarios is included.

Prepared by
Office of Policy and Plans
Division of Special Studies
April 22, 1976

Revised: July 23, 1976

1/ This forecast appeared as an appendix to the study entitled "Deck and Engine Officers in the U.S. Merchant Marine, Supply and Demand 1976 - 1985," released in March 1977 by the Office of Maritime Manpower, Maritime Administration.

Assumptions Used for U.S.-Flag Fleet Forecast

1) Assumed size and speed of vessels not contracted for (actual specifications are used for existing and on-order vessels):

Vessel Type	DWT	Speed
Container	22,500	22.5
LASH	40,000	22
Roll-On/Roll-Off	18,000	23
Neobulk	15,000	15
Heavy Lift	5,000	11.5
Dry Bulk	30,000	16
Tanker		
Domestic	53,000	15.5
Alaska	118,000	15.5
Virgin Islands	35,000	15.5
LNG	125,000-165,000m^3	17

2) Breakbulk tonnage is deleted 30 years from date of construction and replaced by RO/RO, LASH, containership and neobulk. Consideration has been given to the greater efficiency, based on size, port time, and speed, of replacement ships. Generally, containerships are forecast on the more highly developed route and a mix of LASH, RO/RO, and containerships are predicted for the liner trades with the lesser developed countries. Partial containership tonnage replacement has been treated the same as breakbulk tonnage except that a 25-year life for part containerships has been assumed. In general, a 15-year life from date of conversion is assumed for vessels built before 1960 and converted after 1960. There are certain exceptions of overaged vessels that will be retired when replacement construction has been delivered.

3) Containership tonnage is replaced by new containerships on the basis of a 30-year life for containerships. Again, consideration has been given to the higher productivity of new ships. Vessels built before 1960 and converted after 1960 are given a 15-year life from date of conversion, with certain exceptions as explained in Item 2 above.

4) A tanker life of 25 years from date of construction and 15 years from date of conversion has been assumed.

5) Dry bulk ships and specialized tankers are deleted on the basis of a 30-year life. A survey of specialized tanker operators was conducted to obtain tentative replacement dates for their vessels since some have already exceeded the 30/15 year life rule.

6) For containership, LASH, and RO/RO deliveries, each of the forecasts through 1980 consists of current contracts and construction prospects obtained from the February 1975, MarAd survey of operators. Projected construction prospects from the February 1975 survey were reviewed by MarAd personnel in March 1976, to determine the prospects likely to become actual contracts. The forecasts for containerships, LASH, and RO/RO for 1981-85 are based on various growth rates of liner dwt. A 2 percent per year growth rate was arbitrarily employed in the development of the low estimate and a 6 percent per year growth rate was used for the high estimate in the 1981-85 period. The best estimate forecast

was based on a liner growth rate of 4 percent per year from 1981-85. It is assumed that the utilization of the U.S.-flag liner fleet will be close to capacity in 1980 due to greater trade growth than capacity expansion during the 1976-80 period. Thus, continuing cargo growth in the 1981-85 period is expected to offer a significant opportunity for additional U.S. fleet expansion. Shipyard labor production capacity is assumed to be 15 containerships, 4 LASH and 4 RO/RO vessels per year.

7) Dry bulk, specialized tankers, neobulk, and heavy-lift construction forecasts are based on interviews with MarAd personnel. In the low estimate case, only replacement construction on a one-for-one basis is projected. Thus, 14 dry bulk deliveries are projected to replace the 14 dry bulk deletions anticipated during the 1976-1985 period. Eleven specialized tankers and no neobulk or heavy-lift vessels are forecast in the low estimate. The best estimate projection is that four additional bulk carriers, two additional specialized tankers, four heavy-lift vessels and six neobulk vessels will be constructed. In the high estimate, a total of 22 dry bulk, 15 specialized tankers, 5 heavy lift vessels, and 9 neobulk deliveries are projected during the 10-year period.

8) Projected tanker deliveries consist of current contracts; two prospective contracts; contracts resulting from the Virgin Islands

petroleum trade if it becomes subject to the Jones Act; and construction for replacement of domestic tankers in the 1981-85 period.[1/]

Each of the forecasts includes all the current contracts (45 tankers) and the projected deliveries in the early 1980s for domestic tanker replacement (21 vessels). In the low estimate, this is all the construction projected. The high estimate includes two tankers, to be delivered in 1977 and 1978, for the IOT Corporation, and 16 additional vessels for the Virgin Islands trade.[2/]

The best estimate represents the mid-point between these two values. It includes one IOT tanker and nine for the Virgin Islands trade.

The average size of the tankers forecast for domestic replacement is 53,000 dwt. This is an average of two 35,000-dwt tankers and one 89,000-dwt vessel. The average size tanker for the Virgin Islands is projected to be 35,000 dwt. The construction of the two IOT vessels would displace some of the domestic replacement construction requirements in the early 1980s (or free some older domestic vessels for the Virgin Islands trade). The 16 tankers

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1/ It should be emphasized that enactment of oil cargo preference legislation, similar to that which was passed by the Congress in 1974, could significantly alter the tanker projections included in this forecast.

2/ This estimate is based on the assumption that legislation will be enacted to include the Virgin Islands oil trade under the Jones Act. Although this legislation is favored by the Maritime Administration, enactment is not assured.

projected for the Virgin Islands in the high estimate case is not the total requirement for the Virgin Islands trade, because a small surplus of domestic tankers suitable for the Virgin Islands trade is forecast for 1980.

9) The best estimate LNG forecast includes current contracts for 14 vessels and 11 LNG vessels required by the adoption of the El Paso Alaska gas pipeline project. In addition, 11 vessels from pending LNG import projects are forecast. These are all that will be necessary if an LNG import benchmark[3/] of a trillion cubic ft. per year is followed. In the high estimate, this target is relaxed and eight additional LNG deliveries are forecast In the low estimate case, acceptance of the Administration's import benchmark is assumed and the El Paso Alaska project is not accepted, eliminating the requirement for 11 domestic vessels.

10) It should be remembered that this forecast is for the purpose of determining deck and engine officer requirements. Therefore, the assumption of 37 tanker deletions, 5 dry bulk deletions, and 4 specialized tanker deletions in 1976 is not as extreme as it appears since many of these vessels are currently inactive.

3/ The 1 Tcf target is not a firm quota but rather a benchmark figure that could be exceeded if additional LNG projects satisfy certain national security and economic criteria. This target figure will be reviewed periodically by the Energy Resources Council in light of continuing deliberations on domestic natural gas price policy and other events which might affect the availability of domestic natural gas.

Summary of U.S.-Flag Fleet Forecast
(Self-propelled Oceangoing Vessels of Over 1,000 dwt)

	75	76	77	78	79	80	81	82	83	84	85
High Estimate:											
Fleet Size 1/	575 2/	546	549	555	559	568	588	608	620	622	631
Deliveries	X	23	17	26	23	34	36	33	40	37	40
Best Estimate:											
Fleet Size 1/	575 2/	546	548	552	550	556	569	580	581	575	576
Deliveries	X	23	16	24	17	31	29	24	29	29	32
Low Estimate:											
Fleet Size 1/	575 2/	546	548	551	546	543	543	547	539	525	515
Deliveries	X	23	16	23	14	22	16	17	20	22	20

1/ Fleet size includes deliveries made during the year.

2/ 1975 fleet includes 59 inactive vessels.

Projection of U.S.-Flag Fleet
High Estimate

	75	76	77	78	79	80	81	82	83	84	85
Breakbulk	134	131	131	131	131	127	122	117	109	104	101
Containership	109	106	106	104	102	106	111	122	128	130	137
Part Container	21	21	21	21	21	21	21	21	21	21	16
Combo Pass/Cargo	6	6	5	4	4	4	4	4	4	4	4
Barge Carrier	23	23	23	23	25	27	30	33	36	39	43
RO/RO	13	17	18	18	20	24	26	29	33	36	40
Neobulk	0	0	0	0	0	0	0	0	3	6	9
Heavy Lift	0	0	0	0	1	2	3	4	4	4	5
Dry Bulk	17	12	9	7	7	8	11	14	17	21	25
Tanker	234	215	216	221	219	211	213	212	207	195	185
Specialized Tankers	18	14	13	13	13	14	15	16	18	20	22
LNG	0	1	7	13	16	24	32	36	40	42	44
TOTAL FLEET	575	546	549	555	559	568	588	608	620	622	631
New Construction Deliveries:											
Containership		0	0	4	2	9	11	12	15	15	15
Barge Carrier		0	0	0	2	2	3	3	3	3	4
RO/RO		4(4)	1(1)	0	2	4	2	3	4	3	4
Neobulk		0	0	0	0	0	0	0	3	3	3
Heavy Lift		0	0	0	1	1	1	1	0	0	1
Dry Bulk		0	0	1	2	2	3	3	3	4	4
Tanker		18(18)	10(9)	14(13)	9(4)	6(1)	6	5	6	5	5
Specialized Tankers		0	0	1	2	2	2	2	2	2	2
LNG		1(1)	6(6)	6(6)	3(1)	8	8	4	4	2	2
TOTAL NEW CONSTRUCTION		23	17	26	23	34	36	33	40	37	40

Notes: 1) 1978 LNG deliveries excluded two vessels contracted at Sun; 2) New construction in parentheses represents existing contracts; 3) New tanker construction deliveries for the Virgin Islands oil trade are; five in 1979; five in 1980; two in 1981; and one each in 1982 through 1985. If legislation to incorporate the Virgin Islands oil trade under the Jones Act is not enacted, these deliveries would not occur.

Projection of U.S.-Flag Fleet
Best Estimate

	75	76	77	78	79	80	81	82	83	84	85
Breakbulk	134	131	131	131	131	127	122	117	109	104	101
Containership	109	106	106	104	102	106	108	114	116	115	120
Part Container	21	21	21	21	21	21	21	21	21	21	16
Combo. Pass/Cargo	6	6	5	4	4	4	4	4	4	4	4
Barge Carrier	23	23	23	23	25	27	30	31	33	35	37
RO/RO	13	17	18	18	20	24	25	28	30	32	34
Neobulk	0	0	0	0	0	0	0	0	1	3	6
Heavy Lift	0	0	0	0	0	1	1	2	2	3	4
Dry Bulk	17	12	9	6	5	6	8	11	14	17	21
Tanker	234	215	215	226	227	222	229	228	223	211	201
Specialized Tanker	18	14	13	12	11	12	13	14	16	18	20
LNG	0	1	7	13	16	24	32	34	36	36	36
TOTAL FLEET	575	546	548	552	550	556	569	580	581	575	576
New Construction Deliveries:											
Containership		0	0	4	2	9	8	7	11	12	13
Barge Container		0	0	0	2	2	3	1	2	2	2
RO/RO		4(4)	1(1)	0	2	4	1	3	2	2	2
Neobulk		0	0	0	0	0	0	0	1	2	3
Heavy Lift		0	0	0	0	1	0	1	0	1	1
Dry Bulk		0	0	0	1	2	2	3	3	3	4
Tanker		18(18)	9(9)	14(13)	6(4)	3(1)	5	5	6	5	5
Specialized Tanker		0	0	0	1	2	2	2	2	2	2
LNG		1(1)	6(6)	6(6)	3(1)	8	8	2	2	0	0
TOTAL NEW CONSTRUCTION		23	16	24	17	31	29	24	29	29	32

Notes: 1) 1978 LNG deliveries excluded two vessels contracted at Sun; 2) New construction in parentheses represent existing contracts; 3) For this forecast of tanker deliveries a mid-point between the high and low estimates was chosen with respect to tankers devoted to the Virgin Islands oil trade. As a consequence new deliveries for this trade were added according to the following schedule: two each in 1979 and 1980; and one each in 1981 through 1985. If legislation to incorporate the Virgin Islands oil trade under the Jones Act is not enacted, these deliveries would not occur.

Projection of U.S.-Flag Fleet
Low Estimate

	75	76	77	78	79	80	81	82	83	84	85
Breakbulk	134	131	131	131	131	127	122	117	109	104	101
Containership	109	106	106	104	102	106	105	108	107	103	104
Part Container	21	21	21	21	21	21	21	21	21	21	16
Combo Pass/Cargo	6	6	5	4	4	4	4	4	4	4	4
Barge Carrier	23	23	23	23	25	27	29	30	30	32	33
RO/RO	13	17	18	18	20	24	24	26	27	29	30
Neobulk	0	0	0	0	0	0	0	0	0	0	0
Heavy Lift	0	0	0	0	0	0	0	0	0	0	0
Dry Bulk	17	12	9	6	4	4	6	8	11	14	17
Tanker	234	215	215	219	212	199	199	197	191	178	167
Specialized Tanker	18	14	13	12	11	12	12	13	14	16	18
LNG	0	1	7	13	16	19	21	23	25	25	25
TOTAL FLEET	575	546	548	551	546	543	543	547	530	526	515
New Construction Deliveries:											
Containership		0	0	4	2	9	5	4	8	9	9
Barge Carrier		0	0	0	2	2	2	1	0	2	1
RO/RO		4(4)	1(1)	0	2	4	0	2	1	2	1
Neobulk		0	0	0	0	0	0	0	0	0	0
Heavy Lift		0	0	0	0	0	0	0	0	0	0
Dry Bulk		0	0	0	0	1	2	2	3	3	3
Tanker		18(18)	9(9)	13(13)	4(4)	1(1)	4	4	5	4	4
Specialized Tankers		0	0	0	1	2	1	2	1	2	2
LNG		1(1)	6(6)	6(6)	3(1)	3	2	2	2	0	0
TOTAL NEW CONSTRUCTION		23	16	23	14	22	16	17	20	22	20

Notes: 1) 1978 LNG deliveries excluded two vessels contracted at Sun; 2) New construction in parentheses represents existing contracts.

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